

American FORESTS

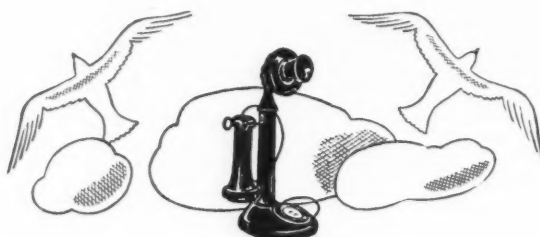


JUNE 1931

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Photograph by Florence A. Hayes

AMERICAN FORESTS

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The enemy fire—tearing through the woods to ravage the haunts and lives of our wild brothers. If you doubt or minimize the destruction of wild life by forest fires, read Mr. Kipp's article on the opposite page—the most authentic record yet presented of fire's toll of creatures of the wild.

Wild Life in a Fire

The Story of Forest Fires and Game as Told by a Survey of Burned
Areas by the Wisconsin Conservation Commission

By Duane H. Kipp

Of the Wisconsin Conservation Commission

OSCAR WILDE'S thought-provoking line, "Yet each man kills the thing he loves," is nowhere more graphically illustrated than in three paradoxes of the outdoors. The first of these is the person who appeals frequently to the humane society to stop cruelty to animals, and yet who through carelessness with fire, will cause untold and extreme suffering to the creatures of the wild. The second is the hunter who devotes time and money to game propagation and protection activities, and yet who will carelessly flip a cigarette into dry grass or brush, or leave a camp-fire burning, destroying by many thousands more game than he can produce. The third is the fisherman whose interest induces him to work faithfully and long at the frequently cold and unpleasant tasks of rearing and planting, and yet whose carelessness wrecks watersheds and poisons streams. It is the thoughtless and careless user of woodlands who destroys the thing he loves. Forest fires, for the most part, are not inevitable. They can and must be controlled. Figures compiled by the Conservation Commission indicate that barely one per cent of the forest fires in Wisconsin are started by lightning, the only natural cause of forest fires. All others find their origin in human carelessness or maliciousness and are preventable.

A story is told of a tenderfoot, watching a forest fire for the first time at close range, who wrinkled up his nose and commented on the unpleasant odor. His query to an old-timer working near at hand brought the laconic reply that

it was "burnin' meat." If more of the causers of fire could visualize the effects of their carelessness, could smell "burnin' meat," the number of fires would soon diminish. They should hear the tales the fighters of fire can tell; they should know of the countless does who reenter fresh burns and vainly search the hot ashes for fawns which had been safely concealed from all enemies but man's carelessness. Fire-fighters can tell of thousands of bird eggs baked crisp and lifeless in spring fires, and of mother birds seared and

dead from heroic but vain efforts to protect their nests of eggs or young.

Fire's economic loss has been stressed for years. The public has been informed repeatedly of the destruction of forest growth, endangering of water resources, and the despoilation of natural beauties by fire. But so far, perhaps because of a lack of pictorial evidence, com-



Her feet badly burned, this doe was found lying in the wake of a Wisconsin fire—suffocated. Seventeen other deer—victims of the same fire—were found nearby.

paratively little has been said of the terrific and appalling slaughter of living things, large and small. Let one man be killed or even injured while fighting fire, and the news is spread broadcast, but in every forest, marsh, or field fire, death and destruction is dealt to uncounted lives and little is said or thought about it. Indeed, there is sometimes even skepticism as to whether game is actually killed.

During the summer of 1930, the worst forest-fire year Wisconsin has ever experienced since there has been organized forest protection, the State Conservation Commission made good use of several extremely bad situations and secured a most unusual series of pictures telling the story of forest

fires and game. It is a lurid, horrible story of extreme suffering, agony and death. Many of the pictures are revolting; none of them are pleasant. But in this they are true to the subject they portray. The extremely doubtful beauty of fire has received far more attention than it merits.

A destructive fire to game and fish occurred in September in parts of Wood, Juneau and Jackson counties in central Wisconsin. More than 120,000 acres of excellent game country were burned over in this single fire, which at its greatest extremity measured ninety-seven miles in circumference. Much of the land in the fire area was open, grassy, dry marsh interspersed with ridges of oak, aspen, jack and Norway pine. These marsh lands had suffered from too enthusiastic and unintelligent drainage. Much of the country in this part of central Wisconsin has been so overdrained that irrigation is necessary.

The fire started in the center of a drained marsh area, through which there were no through roads. Many of the streams and drainage ditches in the district were dry. The peat soil which underlies most of these marshlands burned so readily that plowing furrows to check the fire was useless.

Before the fire, deer were very abundant in this part of central Wisconsin. During recent winters herds of sixty or seventy animals have been seen. The abundance of deer was due to the excellent character of the cover and a plentiful supply of food, a continuous closed season for fifteen years or more, and efficient enforcement.

The most prominent feature of the landscape in the section is South Bluff. On September 16 and 17, large numbers of deer were driven to the bluff by the fire, which was burning toward it. On September 18 a strong cross current changed the direction of the fire from southeast to south, driving the deer into the peat marshes. The fire ran rapidly through the marsh grass, trapping the deer

between the timber fires and the burning peat. Eighteen dead deer were found in the peat just north of South Bluff.

More than a score of deer were found after the fire. Undoubtedly, these were only a small percentage of the number destroyed. Surveys made by the Conservation Com-

mission determined that sixty per cent of the deer surviving the fire had badly burned feet. One deer was found walking on its knees, and when put out of its misery it was found that both front legs had stiffened in a bent position and that the hoofs and foot bones had broken off. A dog was shot when caught in the act of killing a fawn which had badly burned feet. Another fawn was found dead in a ditch. A trap set near this fawn caught a coyote when he returned to his kill next day.

For several months following the fire, freshly dead deer were reported both in the fire area and in the district surrounding it. In November a lame deer was gored to death by a herd of cows. Disease resulting from the weakened condition of the deer, due not only to burning but to suffocation from gas and smoke, took its toll during the winter.

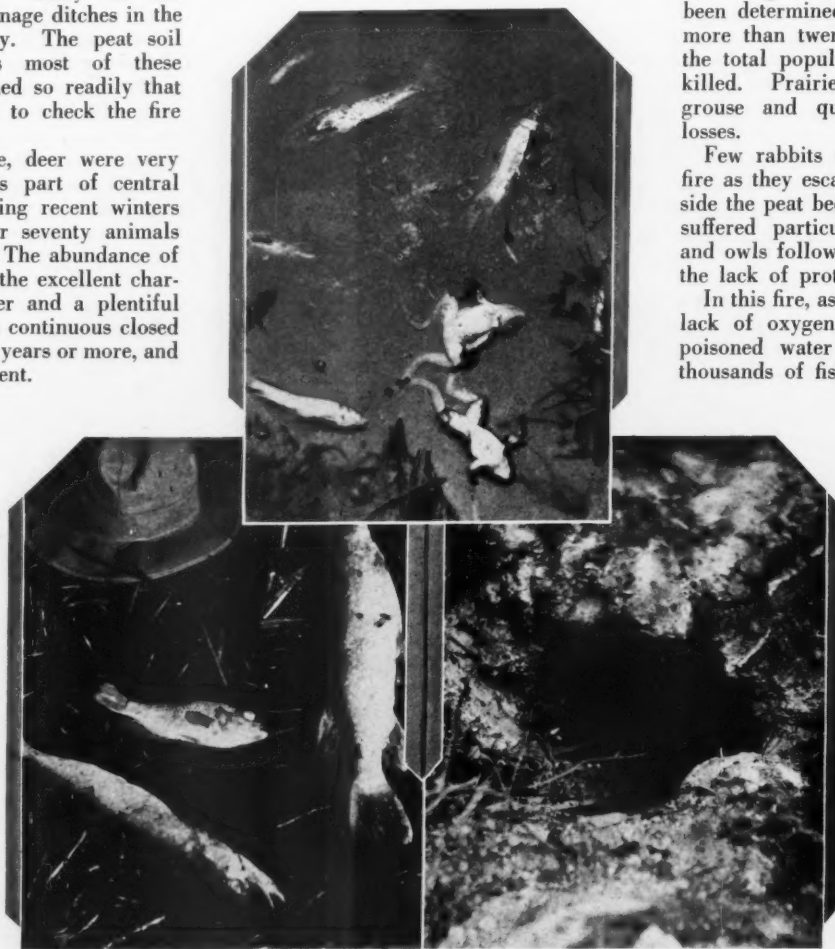
The most abundant game bird in this region was the sharp-tailed grouse. At first it was thought that most of these birds had died in the fire, but according to later checks, it has been determined that probably not more than twenty-five per cent of the total population were actually killed. Prairie chickens, ruffed grouse and quail suffered great losses.

Few rabbits were killed by the fire as they escaped into holes outside the peat beds. But the rabbits suffered particularly from hawks and owls following the fire, due to the lack of protective cover.

In this fire, as in most other fires, lack of oxygen, warmed and ash poisoned water combined to kill thousands of fish. Dead fish were

found in all parts of the drainage ditches and in the Yellow River, which flows through the burned area. Pickerel were hit the hardest. Many dead wall-eyed pike were observed. Dead suckers and minnows were seen in most of the ditches. In the Yellow River black bass and sunfish were found dead. Dogfish, ordinarily one of the hardest fish to kill by lack of oxygen, were found in a helpless condition, although not killed. Even frogs and crayfish died in large numbers.

The damaging effects of forest fires on game might be classified as direct and indirect. The direct includes the game birds, animals, or fish killed (Continuing on page 360)



After the fire, dead fish, frogs and crayfish, were found in large numbers. These victims are typical of the thousands lost when fire swept over 120,000 acres in Wood, Juneau and Jackson counties. Two pickerel and a sunfish in a drainage ditch killed by heated and poisoned water, and ashes. And the little frogs, suckers and minnows are fellow-victims. On the right is the entrance to a bank beaver house—gutted by fire.



A true but not pleasant story—these views taken following a large Wisconsin fire in 1930. *Above:* The feet and legs of this deer were deeply and pitifully burned. *Below:* After the fire come the wolves, and to the right is shown a large buck, suffocated and dead because its burned feet could carry it no farther. The toll taken of game birds is another black chapter. *In the center and to the right* is the thoroughly baked body of a sharp-tailed grouse. *To the left* is shown another, the victim of an owl. Weakened by fire, it was unable to resist the attack of the predator. *In the middle* is a coot, or mud hen, lying on bare peat in a large marsh following fire which burned off all the grass and moss, completely destroying the cover. The bird was baked to a crisp.



"Green Aisles"

In the Forest

By JAMES HAY, JR.

Would you lift up your thoughts?

Would you fling to the coming years a jeweled rope of fancy, and break down the barriers bloodless precedent has built, and so stretch out your hands to grasp life's prizes?

Go, then, into the forest.

Walk down the shadowy cathedral aisles built by the trunks of towering trees;

Regard the miracle of beauty reaching year by year closer to the stars;

Revel in the sun-splashed silence, unbroken save for a bird's sweet minstrelsy like links of silver lightly dropped into a bowl of jade;

And realize that, with the babble of men and the turmoil of towns gone from you, you are at last alone with the Great Spirit.

Then will come to you mystic and mighty visitors, magic artists to paint upon the canvas of your mind ultimate truth.

Then will you behold a vision of the thoughts and deeds by which men come closer to the everlasting altars.

In such a place, at such a time, if menaced by despair, you will see, far down the dim and ancient corridor, a gleam of that hope-star which once rode always in its meridian for you.

Or, if heart-sick from seeing men mad for wealth, perceive that there are times when all the gold of mart and countingroom is as nothing compared to the glory of some once-beloved woman's hair;

Or, if debased by ugliness of thought, cleanse all your soul with the memory of a summer wind that robbed the rose;

Or, bankrupt of ideas, wield again Romance's gorgeous lance with which in younger days you made a radiant play.

Thus, coming out from that green-tapestried domain, the closest of all earthly dominions to the throne of heaven, you will stand forth a Greatheart unafraid,—

For in the immemorial calm of this temple not made with hands, you, inevitably spurning the littleness of life, enter into the company of the high gods whose conquering and shining weapon is Imagination, whose impregnable armor is Resoluteness of Soul.

Tupelo Time

By

INEZ HALE MACDUFF

A GRAY April morning—cold and dreary even on a palatial extra-fare train rushing across the continent. Travel-weary passengers drift into the dining car, scowl at the menu and stare gloomily at the cloud-veiled landscape. The waiter deferentially suggests to one—"And will you have the honey with your waffle, sir? It is the very finest honey made—pure white tupelo. Yes, sir! I'm sure you will like it."

The breakfast is served, and in due time a small, squat jar of crystal-clear, pale yellow fluid appears before the weary guest. Its contents are revealed as a delicately flavored, infinitely smooth, slow-pouring liquid, which becomes subtly itself on the palate, perfect in flavor and consistency. The guest, suddenly hungry, consumes the last drop with satisfaction.

Two thousand miles from the chance diner and his pleasantly, though expensively gratified appetite, there lies a heavily timbered, sparsely settled region of which he never heard, and through it runs a calm, purposeful river with a long Indian name that would be only a jumble of the alphabet to him. It is a friendly river, but it is businesslike, and as it rounds a deep curve in the shoreline it neither repulses nor urges one to follow. Yet if one descends the gentle slope of the shore to a boat waiting among graceful, gray tree-trunks that stand in the shallow backwaters, there would be no delay in paddling out into the bayou, clear of the clustering trees, past the steamboat landing and out into the current. For those who listen to rivers know that this one has something to say.

Rapidly, happily the miles flow past. Evenly, unhurriedly the river swings on between banks massed with the glorious green of a virgin forest, rich in realization of a southern April. Cypress, cottonwood, water elm, sycamore, laurel oak, cedar, hickory, live oak, chinquapin, water ash, sweet bay, box elder—all these and more crowd its banks and form a background for thickets of willow, button bush, black haw, titi and hackberry. Darkly massed behind them loom giant magnolias dotted with early bloom that trails its exquisite fragrance on the morning air. Wild wisteria, scrambling adventurously over shrubs and trees, swings its first purple tassels in the river breeze, and feathery cottonwood and fluffy willow blooms drift lightly down through the soft air.

Far more numerous than any of these, however, are thickly branched trees with sturdy gray-brown trunks and dark, glossy leaves. They seem to be everywhere—tender slips at the water's edge, thick bushy younglings mingled with the forest growth on the low shore, mature trees standing in the still backwaters and lagoons. This is the tupelo gum tree of the southern lowlands. From its branches at this season depend thousands upon thousands of small fuzzy balls or blooms, on long stems and in thick clusters. And upon these has been founded, casually and gradually, an industry that offers to discriminating world markets a valuable commodity in the form of a choice type of the most wholesome sweet known.

For miles down the river there is no sign of human habitation, but hidden in the edge of the leafy screen along the banks one unwittingly passes many well-tenanted homes of tireless, eager workers. Though the air be heavy with the scent of spring blossoms these busy swarms of Italian bees pay no attention to any but the white tupelo blooms, and the



Photograph by G. H. Lentz

When the blossoms come, it's tupelo time in Florida! On the edge of a tupelo swamp.

river-front and swamp in all directions are astir with them through the daylight hours. The "flow" is on! It is tupelo time!

For those who think of Florida only as a tropical winter playground where a fortunate few may loll in summer attire on white sand beaches, there is revelation in a trip to the little-known northwest section of the state. Here four counties dip down to form the last descending point of land before the Gulf Stream sweeps up to hollow out the great curve of the peninsula's western shore. Here is a land undeveloped drowsing happily among its riches, covetous of no one, desirous of nothing, unselfish to a fault. Endless acres of cutover pine land, worked out years ago by the great lumber companies, are abandoned to pasturage and casual turpentine of the younger growth timber. Deep swamps thickly crowded with hardwood trees, as yet spared the timberman's ax and saw, shelter birds and game in great numbers.

Centrally located in this undeveloped region and fronting on the Gulf of Mexico is Gulf County, created from the southern part of Calhoun County in 1925. It is sparsely settled, there being perhaps no more than 5,000 people in the entire county. Wewahitchka, a small village located in the north central section, is the county seat and is the nucleus of the tupelo honey industry of northwest Florida, with an annual production of 535,000 pounds of fancy white tupelo honey, which brings the producers about \$60,000.

Fancy white tupelo honey is considered the choicest kind and grade offered to the trade, as it is delicately flavored,

crystal clear, light in color, smooth in consistency, high in density and is not variable in any way. In addition to these advantages, the pure white tupelo honey has the remarkable qualities of never granulating and never becoming rancid. One producer at Wewahitchka has a sample of honey which he has kept for nineteen years. It is kept in an ordinary



T. Hope Cawthon

Along the Apalachicola—One of the small wharfs in the apiary section. Banks massed with glorious green.

glass jar with a cork, and retains the same flavor, color and consistency which it had in the beginning. Despite these exceptional qualities, white tupelo honey rarely reaches the consumer in an unadulterated state, because the producers for the most part sell direct to canners and commission men who have utilized it to build up and improve blended honey from other sections. The advantage to the concern which bottles honey is obvious; the addition of a small quantity of white tupelo honey to that of other flavors and grades improves the taste and lengthens the time during which it will keep without granulation or deterioration. The disadvantage to the producer who has so carefully handled his apiaries throughout the year in order to guarantee the purity of his tupelo honey is also obvious, since few consumers ever obtain his product in an unadulterated state or know its source. The remedy, apparently, lies in a movement now on foot to revolutionize the prevailing system of marketing.

The tupelo gum tree, both white and black, is native to the swamps and river bottoms of north-west Florida and grows profusely in them. It also grows in Louisiana, Mississippi and other Southern States, but Gulf County apiarists state that the production of pure white tupelo honey has not been reduced to an exact science except in their locality. The black tupelo makes a darker and less desirable honey than the white, and mixing of the two is carefully avoided in the Wewahitchka section, where bee-keepers have learned to manage their hives in such a way as to accomplish this.

The Chattahoochee River, rising in central Georgia, flows south to the Gulf of Mexico and is joined near the Florida line by the Flint River from Alabama. From this point the stream is called the Apalachicola until it reaches the Gulf at the town and bay of the same name. For about sixty miles of its lower course the banks and backwaters of the stream

are heavily wooded with the tupelo gum, and the river swamps in which this tree thrives vary from one to twenty miles in width. Learning early of the superior quality of honey produced by the tupelo gum and the preference of the bees for it, local apiarists placed their colonies of bees on the river bank or deep in the swamps, often locating them ten, twenty or more miles from any human habitation. There are few roads in this section, and many apiaries are inaccessible except by boat. Most of the tupelo acreage is leased from its owners by apiarists, though some own the land on which they operate. There are twenty-eight of the larger apiary sites, averaging twenty-five acres to the site and covering more than twenty thousand acres in all. Scientists have stated that bees will fly three miles for honey, but practical apiarists in the Wewahitchka section believe that two miles is an average distance of flight, and they locate their colonies with this in view. The Italian bee predominates in this district, though some of the wild black bees which abound in Florida forests have mingled with hives in a few apiaries. The wild bees are difficult to handle and are not desirable for commercial use.

Honey producers were alarmed and distressed about a year ago because of the entrance of cigar-box manufacturers into the white tupelo section and the purchase of tupelo gum timber by them. It was found, much to the relief of apiarists, that the wood of the tupelo gum is too light and brittle for use in box making, and other hardwoods were substituted.

The tupelo gum, or cotton gum tree, is usually fifty to seventy-five feet in height and two to three feet in diameter, and it frequents swamps and inundated areas. The



T. Hope Cawthon

The time has come to open the hives. In just one apiary, 40,000 pounds of pure white tupelo honey is produced each season.

base is often enlarged, and the tree has a fairly straight trunk covered with thin, gray-brown bark, deeply furrowed. The branches are smooth and light brown, and the slender, pointed leaves are thick, their upper surface being dark green and lustrous and the lower pale and downy. The blossoms are usually borne on separate trees, the male in dense round clusters and the female alone on long slender stems. The bloom appears before the leaves on the black tupelo gum, but the opposite is true of the white tupelo. The male tupelo bloom resembles a black clove and is said to contain more honey than the female bloom, which is a small fuzzy ball.

Each of them secretes nectar constantly and profusely for twenty to twenty-five days, and bees return again and again to the same blooms for honey, which often gathers so thickly that it could be scraped off with a knife. It is believed that twelve days elapse from the bud to the full bloom of the tupelo, and after the period of secretion the pod turns brown and drops off.

The present State apiary inspector for that district has resided near Wewahitchka since 1885, and he has records of carefully conducted tests in which single colonies of bees have been known to gather twenty pounds of honey in one day. In a favorable season one apiary containing ninety colonies produced thirty-eight barrels of honey in three weeks, each barrel containing thirty gallons. The average production of one hundred colonies during the brief period in which they gather white tupelo honey is twenty thirty-gallon barrels, but records of twenty-five and even twenty-seven barrels are common. The confinement of the bees' activities to the short space of three or four weeks makes possible the production of unadulterated white tupelo honey, and the insects are "on vacation" during the remainder of the year.

For months the bees are subjected to an unconscious process of preparation for the brief period of the white tupelo "flow," which in normal seasons is at its height from April 20 to May 15. It lasts from three to four weeks, and the hives are robbed two or three times, practically all of the honey being removed the last time.

During the first week in January the hives are brought from their winter quarters to the spring colony locations and the bees begin to feed at once on titi, maple,

for the top boxes. At the end of the black tupelo flow, and just before the white tupelo blooms, the hives are completely cleaned out, so that the white and black tupelo honey may not be mixed. The black tupelo honey is known to the trade as "amber" and is sold to manufacturers of candy and confections.



T. Hope Cawthon

The honey house is built immediately behind the high platform, and in the center, and inclined runways, to facilitate handling, lead down to the small wharf or boat landing at the river's edge.

About April 20 the white tupelo "flow" is at its height and the bees have reached their best condition of the year. Within a period of about three weeks, more than 500,000 pounds of white tupelo honey are gathered in this vicinity, and the bees work so frantically that the average life of a working bee during the "flow" is estimated to be twenty-one days. He wears his wings out in that length of time and dies.

At the conclusion of the white tupelo flow some producers leave their bees to fill up the hives during June and July with honey and pollen from the wild grape vine and snow vine for the winter months, as all of this is dark honey and is not of high value commercially. The most profitably operated apiaries, however, follow a different plan. Immediately after the white tupelo season the hives are screened over and closed, and a river steamer collects them from the small landings which are built at intervals. They are shipped from sixty to one hundred miles up the river and its tributaries into farming sections of Georgia and Alabama, where they are scattered in small groups of several colonies each and are allowed to pass the rest of the summer in gathering honey and pollen for the winter months. With the arrival of cold weather they become dormant, and in early January they are again shipped down the river to begin their work of hive building and preparation for the brief

period of the honey flow. This practice gives the bees access through the summer to pollen and honey from cotton, corn and other cultivated crops in addition to that from wild growths. Very little farming is done in the white tupelo section where the bees do their most important work, and they must be nourished and maintained in good condition throughout the remainder of the year.

The largest individual producer in this section has an apiary thirteen miles from Wewahitchka, where 326 colonies of bees average 40,000 pounds of pure white tupelo honey each season. The presence of high (Continuing on page 381)



T. Hope Cawthon

High water in the tupelo swamps makes it necessary to build many of the apiaries on platforms sixteen feet high and three to seven hundred feet long, along which the hives are placed in double rows.

ironwood and a variety of other early blooming plants. Having been dormant for two or three months, they are in the weakest condition of the year at this time. Through January and February they are carefully built up and nurtured in preparation for the real work of the spring. In unusually cold seasons it is necessary to feed the bees, but normally they find sufficient sustenance among native growths.

In March the black tupelo gum, willow, oak and other trees begin to bloom, and the bees, which are now in good condition, begin work in earnest. The colonies are encouraged to continue building up and the foundation is placed



TO ROUND out its third year of campaigning against woods burning the Southern Forestry Educational Project of The American Forestry Association, in co-operation with the states of Florida, Mississippi, Georgia and South Carolina, has completed the production of a new motion picture—the third to be made especially for its work. The first picture, *Pardners*, has been shown before more than 2,000,000 children and adults, while nearly a million people have seen *Danny Boom*, a two-reel picture made in 1930.

The new picture, of three reels, and titled *Burnin' Bill*, is perhaps the most spectacular forest-fire picture ever produced especially for educational purposes. The story was written by W. C. McCormick, in charge of the Southern Forestry Educational Project, after nearly three years of close study of woods burning and forest-fire conditions in the South, and was developed to reach direct those in the rural districts who make a practice of setting out fires in the piney woods.

Filmed for the most part in northern Florida, *Burnin' Bill*, while entertaining in that it unfolds a dramatic story, presents a vivid picture of the consequence of the southern practice of "greening up the woods" with fire. It shows fire for what it is—a treacherous, searing, life-consuming menace. At the same time it portrays the extent and effect of organized and efficient protection agencies set up by the Federal Government in the National Forests.

The picture was directed by Erle Kauffman, assistant editor of *AMERICAN FORESTS*, and the cameras were in charge of Sherman Pratt, of New York, and Louis K. Bigelow, of Cambridge, Massachusetts. The cast included W. C. McCor-

mick, his son, William R. McCormick, E. P. Simmons, G. O. Adicks, Paul and Marie Karstedt, all of Lake City, Florida.

Briefly, *Burnin' Bill* is the story of a piney woods farmer of the South who had to see property and life destroyed by a forest fire of his own making before he would accept the practice of woods burning as a menace. A stubborn champion of "swinging" the woods for dubious benefits, "Burnin' Bill" McGee, with his young son, led a shiftless existence on an unproductive farm. Even the fact that his neighbor and friend, Judge Parker, protected his pine lands from fire and grew trees profitably did not influence the burner. To protect his growing trees which were being damaged by the burner's fires, the Judge purchased the "burned-out" farm of his neighbor, who with his son, sets out for Montana.

In Montana, the burner cleared his land for farming, utilizing fire as had been his custom in the South, setting his fires despite the ranger's warning. The result was fire—fire that was picked up from a blazing brush pile by a powerful wind and thrown against the forest in a searing, consuming flame. The burner watched his new cabin reduced to an ash heap; he witnessed all his worldly wealth consumed. Then the

blow. His son was missing. All he could find was a charred spur the boy had carried. Reason left him and he succumbed to the smoke. He wandered aimlessly about for days. Eventually he found his way into the South and his old farm. Here, in a dramatic setting, the thing happened that completed his transformation. He found his boy, who had been saved in the fire by forest rangers. This reunion marked the beginning of years the burner later devoted to crusading in the interests of preventing woods fires.



On location for the fire scenes. Left to right, E. P. Simmons, as "Forest Ranger Britton"; Erle Kauffman, director; W. C. McCormick, as "Burnin' Bill" McGee; Sherman Pratt and Louis K. Bigelow, cameramen.

"Still" Highlights from "Burnin' Bill"



Though Little Bill protests, "Burnin' Bill" sets his fires.



The Judge tells the children the story of the piney woods.



Overcome by smoke,—and searing flame set by his own hand—
Burnin' Bill falls.

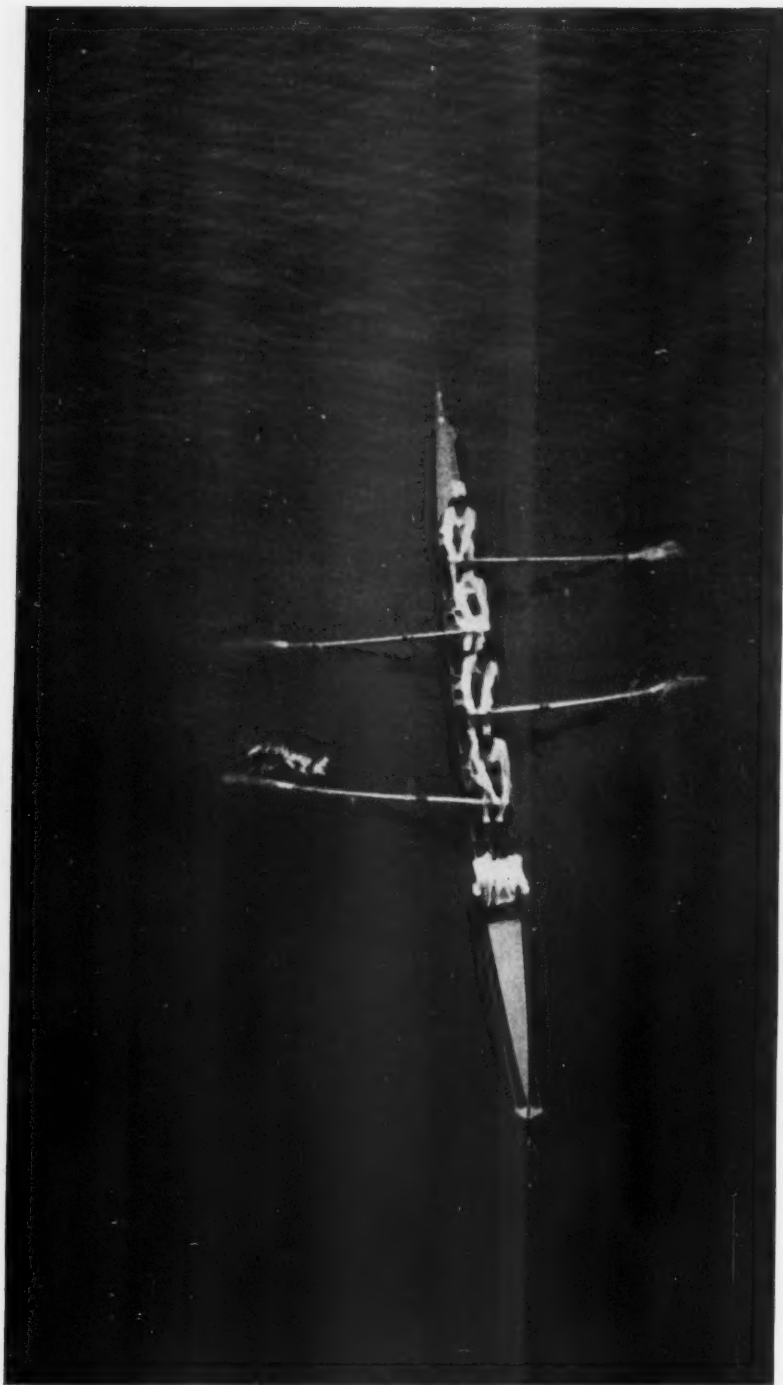
The fire out of control, he
realizes his error but it is
too late, as he sees his
home destroyed.



Just in time, the Ranger
rescues Little Bill.



His bitter lesson learned, "Burnin'
Bill" becomes "Preachin' Bill"—
his pulpit the open road—his con-
gregation the little children—his
sermon the gospel of fire preven-
tion and woods protection.



A four-oared shell—ready to go.

WHILE the day of wooden ships for ocean commerce is past, out of the Northwest each year comes a fleet of wooden vessels that has captured the fancy of the American public. In a unique boatshop, tucked away in the rear of the crewhouse of the University of Washington, at Seattle, George Pocock, master shell-builder, constructs the slim, trim craft that constitute America's intercollegiate racing navy.

A standard, eight-oared racing shell is sixty-one feet long. Its beam is twenty-three and one-half inches at the widest point, and it weighs less than three hundred pounds. When carrying a full crew of eight oarsmen and a coxswain, this pencil-like boat draws approximately six and one-half inches

of water, and driven by the muscles of powerful athletes it is capable of a speed of twenty miles an hour.

The Pocock shop is divided into three departments. One of these specializes in the fabrication of the strong, light oars. Twelve feet in length, yet weighing only eight pounds, these important accessories of boat racing are made of the tough, fine-grained Alaska cedar. Each oar is constructed of four pieces of wood so skillfully fitted that it is almost impossible to find the joints. The hollow shaft, or "loom," with walls only three-sixteenths of an inch thick, makes for lightness and permits the slight bend-under-pressure which gives the whiplike backlash to the blade at the finish of the stroke. So popular are these oars that many are used by the racing crews of the United States battleships.

In another part of the shop are made the metal portions of the boats. The strong bronze rowlocks are cast, and here are made the outriggers and their braces which hold the rowlocks against the fighting pull of the husky oarsmen. They are constructed of twenty-gauge steel tubing, thinner than a sheet of heavy paper. The brass strips for strengthening the rudder, bronze wheels for the sliding seats, the aluminum ring known as the "button," which marks the balance point of each oar, are turned out in this portion of the Pocock

Shells of Spruce

The Latest
Thing in
Wooden Ships

By

NATT NOYES DODGE

shop. All of the metal entering the construction of each shell weighs less than sixty-five pounds.

The main part of the shop is that in which the boats themselves are built. Here, too, are made the plywood seats of Sitka spruce or Alaska cedar, each weighing one and one-fourth pounds. They will carry a two-hundred-pound man. The rudders are made here also, thin pieces of wild cherry or Honduras mahogany, strengthened by a band of brass to prevent injury when submerged logs or other water-hidden dangers are encountered. Here are fashioned the leather "shoes" into which the oarsmen's feet are strapped; here are made the leather stops which terminate the glide of the sliding seats.

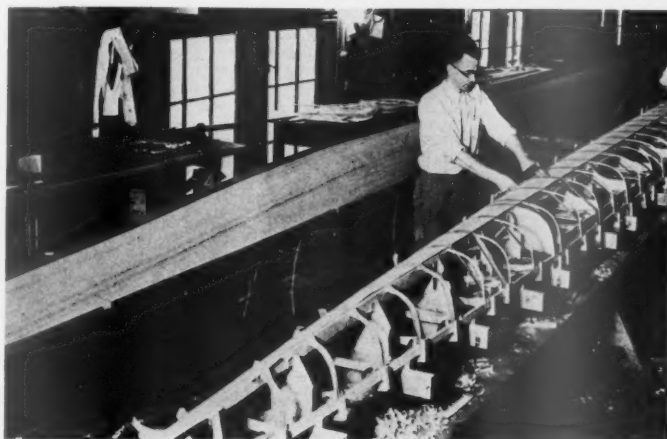
But the shells themselves are the most interesting of the Pocock creations. Their great length necessitates a very long space for their construction, so the main part of the shop is long and narrow with room for several boats. When finished, the shells are hoisted to the ceiling where they are securely lashed until time for shipment. They are sent by express and, because of their great length, occupy an entire baggage car. George Pocock is a craftsman of the old school. His father and both of his grandfathers were boat-builders in the famous old Messinger shop, at Teddington, Middlesex, England. There he served his apprenticeship and built his first shell. In his lifetime of boat-building, Pocock has used or tried almost all of the various woods which the forests of the world produce. He has developed new methods of construction, and has improved racing-shell design. He has even carried his knowledge and skill into airplane manufacture, for during the war he built the wooden portions of the battle-planes made by the Boeing Aircraft Company. But he has never lost his love for absolute accuracy, perfect fit, and spotless finish.

The first step in the construction of a racing shell is the placing of the keel. This piece of Sitka spruce is sixty-one

feet long, two and one-fourth inches deep, and five-eighths of an inch wide. Sitka spruce, grown in Oregon, is chosen because of its remarkable strength and toughness. Pound for pound it is stronger than steel. Paralleling the keel are four strips of spruce, two of which, the side stringers, form the gunwales of the finished boat. The other two, called ribbands, support the slatted Alaska cedar "floor," upon which



Cross-section of a Pocock oar shaft. The oar was never completed, because of the inequality of the thickness of the shaft walls, as absolute accuracy is the standard.



The master shell builder at work on a ship for the United States Naval Academy. The "skin," made up of four slabs of red cedar, is being fitted to the skeleton of the boat.

are laid the tracks for the seat rollers. The ribs, of which there are fifty-nine pair, are made of selected Indiana ash. These pieces are built of four strips, glued together in a form so that each rib is actually molded to fit the position in which it is used. When glued in place to the keel, ribbands and side stringers the ribs shape the boat and comprise the skeleton over which the "skin" is bent.

The "skin," or outer covering of the hull, is made up of four slabs of red cedar, each slab being a perfect piece of wood thirty-one feet long, twenty inches wide, and only five thirty-seconds of an inch thick. Red cedar is selected for this important duty because of its lightness and the ease with which it will bend without checking. The trees from which these slabs are taken grow throughout the Northwest, some reaching a height of 250 feet. The huge trunks of the cedar were used by the Siwash Indians of the Puget Sound country, many years before the white man set foot on the shores of that inland sea, for the construction of their famous dugout canoes. In the Pocock shop these big slabs are steamed and bent over the ribs and keel to which they are securely fastened with copper rivets and waterproof glue.

A slender strip of Sitka spruce, the keelson, rests atop the keel and supports the center of the "floor," while thirty-two ash braces, known as rigger timbers, spaced the length of the boat and bolted to the keel, extend above the upper edge of the "skin" on each side furnishing a base to which are bolted the steel outriggers which hold the rowlocks. The washboards, thin strips of Alaska cedar, four inches wide, are fastened to the portion of the rigger timbers rising above the "skin." Fore and aft of the portion of the boat protected by the washboards and occupied by the crew, the shell is covered with tightly stretched Japanese silk, heavily varnished. At the bow of the boat, projecting a (Continuing on page 382)



Completed eight-oared shells. Note the sliding seats in position on their tracks. They are mounted on bronze wheels.

Mt. Vernon Tree Planted at the Capitol

Ceremony Inaugurates Nut Tree Planting Program

THE planting of a Mount Vernon walnut tree descendant on the grounds of the United States Capitol on April 20 marked the first step in an international nut tree planting program sponsored by the National Nut Tree Planting Project. G. H. Collingwood, Forester of The American Forestry Association and secretary-treasurer of the project, presided at the ceremony in which representatives of patriotic and conservation organizations participated.

The young tree was grown from a walnut gathered by Boy Scouts on the grassy slopes of Mount Vernon. It stands in the west grounds of the Capitol near the stately avenue of sycamores that lead from Pennsylvania Avenue to the west entrance and the statue of Chief Justice Marshall. A troop of uniformed Scouts from Alexandria, Virginia, the city associated with Washington's youth, played the rôle that will be repeated on state capitol grounds and at American-owned embassies and legations during the next two years as part of celebrations honoring the 200th anniversary of the birth of our first president, George Washington.

The speaker of the occasion, Representative Sol Bloom, of New York, associate director of the United States George Washington Bicentennial Commission, quoted from the Washington diaries and revealed the great interest of the first President in tree planting. Mrs. Alice H. Richards, of Maine, regent of the Mount Vernon Ladies' Association of the Union, presented the famous tree and told of the continued efforts necessary to maintain the trees of Mount Vernon in vigorous condition. It was received by Chief Scout Executive James E. West, of New York, who told the Scouts of the honor that had been accorded them and pledged the cooperation of all Boy Scouts in this patriotic, conservation program.

The United States Department of Agriculture was represented by Dr. A. F. Woods, director of scientific work, who placed the first shovel of dirt around the tree. Mrs. C. A.

Finley, of Pittsburgh, Pennsylvania, chairman of conservation of the Daughters of the American Revolution, and Mrs. G. O. Gillingham, of Washington, D. C., representing the General Federation of Women's Clubs, attached the colors of their organizations as temporary markers for the tree, signifying the cooperation of the Daughters of the American Revolution and club women of the country.

Although special attention will be given the Mount Vernon tree descendants during the 1932 celebration, this program was only a part of the larger plan of the Council of

the National Nut Tree Planting Project which sponsors the planting of nut tree descendants from all of America's historic shrines. Gettysburg, Monticello, Arlington and the homes of Andrew Jackson, Thomas Edison, Admiral Byrd, and Thomas Heyward, Jr., are among the famous locations from which nuts have been gathered for nation-wide distribution. The project is sponsored by the Boy Scouts of America, the United States Department of Agri-



The planting of the Mount Vernon walnut tree descendant. Representative Sol Bloom, associate director of the George Washington Bicentennial Commission, is placing a shovel of dirt around the tree while Chief Scout Executive James E. West stands at attention.

culture, The American Forestry Association, the American Walnut Manufacturers' Association, and public-spirited patrons interested in conservation.

"Washington, the tree planter," said Mr. Bloom, "was our first scientific farmer. George Washington loved trees. More than that he proved his interest by planting them. In planting this Mount Vernon tree descendant on the grounds of the United States Capitol we honor the memory of George Washington. It strikes me as a particularly fitting memorial. The tree comes from the home that was beloved by him, and it will flourish on the site which he helped to select for the seat of government of the young republic. It is one of America's native hardwoods, and one of the trees to which there are many references in the diaries of our first President.

"During the next few months," said Mr. Bloom, "other young walnut trees and seeds from historic places will be planted as living memorials to the first President."



Honey-colored *Armillaria mellea* growing in stumpy ground. This is the Jesse James particularly partial to shade trees, that robs orchards and vineyards.

Underworld Characters of Tree Land

By H. R. ROSEN

A RECENT press dispatch carried the confession of an underworld character who attempted to hold up a payroll messenger. For this attempted robbery another man, presumably innocent, had been sentenced to fifteen years imprisonment. Such confessions among human beings are always tinged with interest even though they may be relegated to the realm of fiction. But among confessions, those made by the underworld characters in the plant kingdom reveal tales of life-and-death struggles that put severe strain on our imaginations, so strange are they.

Among the innocent-looking characters in the plant kingdom none are more harmless appearing than certain mushrooms—that is, harmless in their action on other plants. Yet their criminal activities in the plant kingdom are often destructive and murderous. Consider the case of *Armillaria mellea*, sometimes known as the honey-colored mushroom. This character is not one that would ordinarily be regarded with suspicion, yet among its underworld relatives *Armillaria* has a unique record as a killer. This fungus has so many fetching ways, whether it be judged by its looks or by



The oyster mushroom—*Pleurotus ostreatus*—a really beautiful fungus thriving on the dead root of a poplar. The tendency of this form is toward dead organisms, and it is not definitely known whether it will attack living roots.

its culinary properties, that it is regarded with respect and is even venerated to some extent by man. *Armillaria* is one of America's commonest mushrooms. It is at home in the East as well as in the far West, and can be found in the North as well as in the South. It prefers to live in wooded glens but may be found occasionally on lawns, especially where stumps exist or were formerly present, and particularly is it to be found in recently cutover lands. Many orchardists who have planted their fruit trees or vineyards in stumpy fields or in newly cleared places have learned from bitter experience that it is unsafe to plant in such locations.

It stands about three to eight inches high, its cap showing various shades of brownish yellow or honey color, measuring about two to five inches across the top, and occasionally possessing small patches of persistent tufts or scales. The gills, which are located on the lower or under side of the cap, are whitish or cream colored and somewhat close to them on the upper part of the stem is to be found a persistent ring. The stem is rather tough and has a marked tendency to extend for some distance downward in the soil. The fungus is usually found in the fall of the year and is often to be seen growing in groups around a stump or around the base of a tree. As far as its general appearance is concerned one would not be apt to place it in a rogue's gallery. Nevertheless, *Armillaria* is one of the biggest thieves operating in this country.

This fungus lives and does its work underground, where, coming in contact with a woody root living or dead, it



An impending tragedy. This criminal—*Polyporus sulphureus*, var. *Overholtsii*, appears innocent enough on the soil but is actually attached to an underground root of the great black oak nearby, and is slowly killing it.



The little fairy mushroom—*Marasmius*—growing on the bark of an elm tree. With their tiny, cream-colored caps they look like Lilliputian umbrellas.

attaches itself to its victim by means of blackish, narrow strands, pierces it and in time kills it, in case the attack is on living plants. Such attacked plants may linger for some years without showing any visible evidence of a parasite. It is true that a tree or shrub which is thus parasitized may show various signs of weakness, such as poor yields of fruit, a scant show of bloom, feebleness of growth, and a yellowing or premature dropping of foliage. Or the plants may appear more or less sound until a dry spell sets in and then they are apt to suffer severely and not infrequently perish in midseason. Peach and apple trees, shade trees, grape vines and privet hedges are just a few illustrations of the kind of victims of this mushroom. One must constantly be on guard against this criminal. Remedial measures against it, as in most plant diseases, consist essentially of prevention. Therefore, if this parasite is to be avoided, it is obvious that perennials should not be planted in stumpy or recently cutover land. If, for landscaping purposes, it is

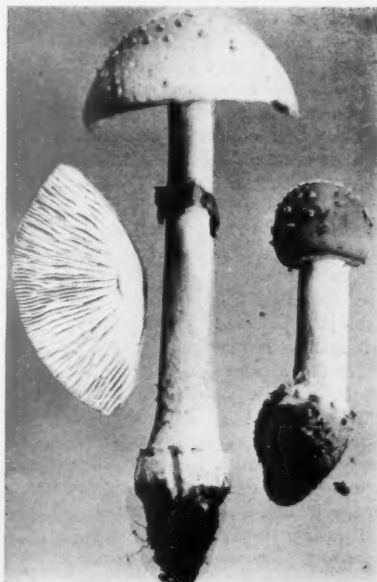
necessary to plant in such ground, it would be highly desirable to dig out as much of the decayed wood, including roots, as possible.

Strange to say *Armillarea* has one redeeming feature. It makes a palatable dish. Whether used in soups, as meat dressings, or as stuffing for roast fowls, it is hard to beat. Unlike many other mushrooms it does not lose its flavor readily in the process of cooking. When dried over a small flame it can be kept indefinitely and used throughout the winter.

The next case to claim attention is *Pleurotus ostreatus*, known as the oyster mushroom. In the society of plants it holds the same place that the society of man gives to those questionable characters who are looked upon with suspicion but who manage somehow to escape the minions of the law. No one knows whether *Pleurotus* will attack a living root, and yet it has been found in the greatest profusion around roots of trees which were alive but a short time ago. And, contrary to the popular idea involved in the expression "mushroom growth" as applied to anything which is expanding or growing rapidly, the main body or spawn of mushrooms is rather slow-growing, taking months or even years in some species before it is ready to produce its fruiting bodies. Of course, once the fruiting parts start to develop it usually takes only a short time for them to reach maturity, frequently not more than a number of hours.

The oyster mushroom is not bad to look at. It received its name from the supposedly shell-shaped fruiting

with its supporting stem may be likened in shape to a V-shaped fan that has been curved or bent toward the expanded end. In color it varies from a light or dark gray to light buff or even brownish shades. The whitish gills on the under side of the cap have a marked tend-



Intoxicating and death-producing, the fly Agaric—*Amanita muscaria*—is conspicuous and easily identified. It has a reddish-yellow or orange-colored cap, usually carrying large, light-colored patches or scales. It is deadly poisonous when eaten in large quantities.



Living exclusively on dung, *Panoeolus*, delicately beautiful, performs a function in the plant world by making its host ready for use in the cultivation of plants.



Resembling strongly the emperor mushroom, *Amanita arkaniana* is a ravishing beauty. Standing about five inches high, the deep-yellow cap sometimes measures six inches across the top.

bodies. It takes, however, a pretty good stretch of the imagination to enable one to envision this shape when observing the ordinary forms of this fungus. While most mushrooms possess stems which are centrally located, this one does not. Its stem is attached to the side of the cap, a feature which offers material assistance in its ready identification. The cap

ency to run down the stem. The short stems are usually attached to decaying stumps or roots.

This mushroom is never found growing on the soil. Invariably it appears in shelf or bracketlike fashion growing out of the attacked wood. It usually appears in the fall of the year and in some seasons may persist into midwinter. Like *Armillarea*, the oyster mushroom is known to the Old World as well as to the New and has been found in the Tropics as well

as in the temperate regions. While the oyster mushroom may rightly be regarded with suspicion as far as its behavior toward living plants is concerned, it is a prime favorite with those who know it and respect it for its flavor. Being rather tough it requires more cooking than most mushrooms. The following procedure has given very fine dishes. The mushrooms with the stems removed are thoroughly washed in running water, cut into small pieces, stewed for fifteen to thirty minutes in boiling water to which salt has been added, using as little water as necessary, then browned slightly in butter.

Imagine a living thing so lowly as to live almost exclusively on dung! Here it is, a species of *Panoeolus*. While the habitat of this fungus may not appeal to our esthetic sense, it should claim our attention for various reasons, not the least being that it performs the very useful function of decomposing the manure and rendering it available for use by cultivated plants. This process is carried on by numerous bacteria and moulds and were it not for their activities the soil would become sterile and every living thing would eventually die of starvation.

Panoeolus is not the only mushroom that lives on dung. Among others the common mushroom of commerce spawns

largely in manure and the beds in which they are grown consist mostly of the same material. Thus it is that man's most highly prized food, from the days of the Cæsars down through the ages, consists essentially of manure that has been metabolized by the delicate mushroom.

The other character that claims our attention is a most modest creature. It is so tiny that it is likely to escape attention, although it is very abundant. *Marasmius* is to be found in the crevices and recesses of the bark on various shade trees. The particular species of *Marasmius* that is here pictured measures about one-fourth of an inch across the cap in fully developed individuals. Many of them are even smaller than that. With their little, cream-colored caps perched on tiny stems they look like dainty umbrellas which may have been bequeathed to us by the Lilliputians.

Next is a criminal which until very recently had pursued its nefarious ways unnoticed and even unnamed. At present it rejoices in the technical name given to it by the writer, *Polyporus sulphureus* var. *Overholtsii*. Compared to little fairy mushrooms, such as *Marasmius*, this thing is a full-grown giant, often measuring as much as twenty-four inches in the widest diameter. Superficially it always appeared as soil-inhabiting, pink-colored fungus, which seemingly had no connection with living trees. Suspicion, however, arose concerning its mode of existence. Curiously, it was often observed in association with living black oak trees, usually growing on the ground within several feet from the base of the trunk, and in every instance the tree which was found in such relationship would show various signs of feebleness and decay. When the matter was further investigated it was discovered that the fungus grew in the soil around the roots of such trees, completely permeating the soil for considerable distances, so that it had a spongy or punky consistency, and finally the polypore was found attached to various sized roots belonging to the same trees. These roots invariably showed various stages of decay and disintegration and issuing the same sort of milky juice which was observed in the body of the fungus growing above ground.

Human criminals have sometimes been found to belong to higher strata of society. In common with this type of parasite the pink-colored *Polyporus* appears innocent or even virtuous in one surrounding, but murderous in another. As one sees it growing on the ground some distance from any tree it appears innocent enough.

As observed on the ground it appears as an irregular-lobed mass, markedly pinkish or flesh colored on the upper surface and almost snow white below. Its fleshy interior is distinctly reddish near the upper surface. In old or dried mummies the pink or red color entirely disappears from all parts and its place is taken by creamy tints. Unlike the other fungi that have been considered, this one does not possess gills on the lower surface. In place of these it produces minute pores. A limy surface incrustation completes the chief distinguishing features of this thief. While it is rather tough and somewhat leathery people have been known to eat it.

The next character to be considered is of special interest. With its gorgeous, deep-yellow cap shaped like a perfect bell, and with its large, pendant, snow-white cup embellishing the base of its stem, nature here presents a form divine. *Amanita arkansana* is a ravishing beauty. In its perfect symmetry and in its delicate contrasting colors it would be difficult to find its peer anywhere in nature.

Amanita stands about five inches high, occasionally larger. The deep-yellow cap is bell shaped or hemispherical and measures about four to six inches across the top. It is perfectly smooth at the apex and corrugated at the margin. The upper part of the stem possesses a large, pendant, fleshy ring which is usually hidden beneath the cap.

The lower side of the cap has cream-colored gills. In young stages a white cup completely covers the whole mushroom so that it looks like an egg. Gradually the cup splits at the apex, the cap being raised above the soil, and the cup remaining at the base of the stem.

In many ways this beauty resembles the emperor mushroom, *Amanita caesarea*, differing from it principally in the color of the cap. Cæsar's mushroom always has a deep-red cap while this one never shows any signs of red. For hundreds of years the emperor mushroom has been highly prized for its esculent qualities but no one knows if the closely related yellow *Amanita* is edible or poisonous. The writer happens to be the one who discovered this species but up to the present he has had no inclination to test its edible qualities.

Since the Eighteenth Amendment has blessed our land many decoctions are known to have been investigated to a greater or less extent with the avowed purpose of quenching the thirst of the investigator. In some instances where the individual remained alive after the experiment it occasionally leaked out that the test liquid had no potency. Here is where the fly *Amanita* comes in.

In parts of Siberia the natives use this mushroom when they wish to go on a spree, three or four for a moderate kick and ten for a thorough drunk. First effects come on rapidly and make the candidate cheerful, then drowsy for ten or twelve hours. Finally there is a state of exhaustion.

It is quite obvious from what has been recorded, although it is not suggested here, that means are now available for obtaining exactly the same effects as that produced by the best distillates without violating the Volstead Act. The fly *Agaric* contains no alcohol. Is it possible that the yellow *Amanita*, here described and which looks so much like the other, may contain similar ingredients?

The fly *Agaric*, *Amanita muscaria*, is a denizen of the woods. World wide in its distribution, it has been known and feared for hundreds of years. Its name is derived from the supposed ability of its extracts to kill flies, but this has not been found to be true by some investigators.

Standing about four to eight inches high and possessing a reddish-yellow or orange-colored cap, which measures around three to eight inches across the top, it is a very conspicuous object. The cap is usually ornamented with large, light-colored patches or scales. The gills are whitish and the stem possesses a ring near its apex and a thick, bulbous base. This base instead of having a large cup shows various scales or rings.

The fly *Agaric* is deadly poisonous when eaten in large quantities. It causes excessive salivation and a flow of tears. The respiration is accelerated and there is often a feeling of laryngeal constriction, nausea and vomiting.

From what has been written it is safe to assume that if some tree or shrub is not doing well and mushrooms are noted in close proximity to the weakened plant, the roots are probably being attacked by this mushroom; some denizen of the underground plant world is getting in its deadly work. Some very recent experiments indicate that where the attack has not progressed to the extent of destroying most of the roots, the application of an organic mercury compound to the soil around the plant prevents the parasite from further aggression. In such cases the diseased plant will in time recover. But if the disease is allowed to progress so that the fungus has taken possession of a large part of the roots then the plant may as well be removed as quickly as possible and replaced by another. In removing such specimens care must be taken to unearth and destroy as much of the root system as possible and the soil should be treated with a disinfectant, of the type just mentioned, prior to the replanting.



Beautiful Mount Mitchell, in "the land of the sky"—the highest peak east of the Rockies. Here in the Southern Appalachians, the first Eastern National Forest history was written.

Pisgah — A Forest Treasureland

By JOSEPHINE LAXTON

"Now, therefore, I, Woodrow Wilson, President of the United States of America, . . . do proclaim that . . . all lands within such boundaries acquired by the United States under authority of the Act of March first, nineteen hundred and eleven, shall be reserved and administered as a National Forest."

THE presidential proclamation which inaugurates a measure of national importance faces, like the mythological Janus, in two directions. It looks backward over years of sustained effort and conquered obstacles and forward to the fruition of hopes and to the possibilities of development that lie hidden in the future.

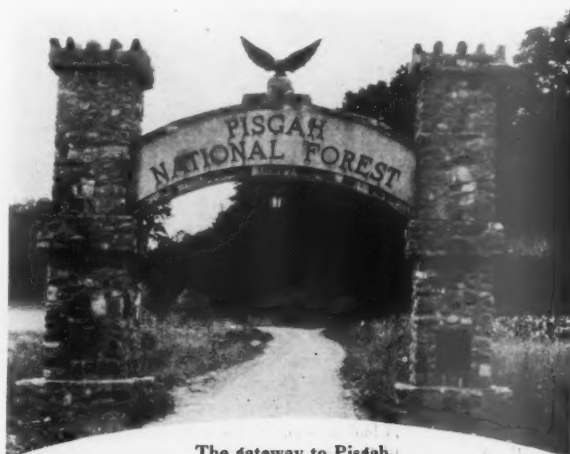
The preservation of a treasureland in the Southern Appalachians by the creation of Pisgah National Forest, in North Carolina and Tennessee, has been worth more than its cost in effort and money. Few spots on the American continent are so beautiful, so varied, or so interesting. With its vast sweep of lofty peaks, rushing waters, and

shifting clouds it is a veritable paradise to the lover of the out-of-doors. The origin of these mountains lies hidden in the remotest geological ages, and their forested slopes bear trees whose ancestors lifted their branches to the sun when the land to the north was buried under rivers of ice, and vast seas inundated the plains to the east, south and west.

So great is the variety of plant growth here that Asa Gray, the eminent botanist, said that he encountered a greater number of indigenous trees in a trip through western North Carolina than can be met in a trip from Turkey to England.

The rivers which originate in this great divide flow into or along the edges of every state from Ohio to the Gulf and from the Atlantic to the Mississippi. The mountains are therefore the guardians of the agricultural, water - power and commercial interests of the entire Southeast.

Not only as a protection to the headwaters of streams, but for their own intrinsic value is the preservation of these Appalachian forests of paramount importance. The most valuable species of hardwoods are native here, as are



The gateway to Pisgah.



A very interesting picture of the National Forest Reservation Commission and party in the early days, taken at Buckspring Lodge, on Mount Pisgah. In the group are Secretaries Lane and Houston, Representatives Lee and Hawley, George Otis Smith, H. S. Graves, C. D. Beadle, C. D. Rankin, C. D. Cushing, J. B. Rector and William L. Hall.

spruce, Carolina hemlock and many other conifers.

As early as 1885 Dr. Henry O. Marcy, of Boston, saw the advantages of this region as a health resort and, in a paper on the climatic treatment of disease, read before the American Academy of Medicine in New York, advocated the purchase by the government of a large area including the higher ranges of the Appalachian system.

Although this suggestion came in a decade when conservation was beginning to take root in American thought, there was still a feeling that our natural resources were really inexhaustible and no steps were taken to follow Dr. Marcy's advice. A few years later another medical man, Dr. Chase P. Ambler, a specialist in the treatment of tuberculosis, located in Asheville. He, too, saw in this region a mecca for pleasure and health seekers, and on a fishing trip with Judge William R. Day, of Ohio, former Secretary of State, took up with him the matter of Government purchase and control of the most beautiful and valuable parts of the Appalachians. At first Judge Day could not see the feasibility of the idea, but later he outlined a plan of procedure. Dr. Ambler and A. H. McQuilkin, editor of *Southern Pictures and Pencilings*, began at once an intensive campaign. The Parks and Forestry Committee of the Asheville Board of Trade was enlisted, newspapers throughout the state featured conservation articles, and petitions were circulated by the school children. One North Carolina editor went so far as to state that "unless the Government buys a park the Vanderbilt estate will show the grandchildren of the present generation all that is left of the beauty we now enjoy." Personal letters were written by leading conservationists, including Gifford Pinchot, Dr. Joseph Hyde Pratt, Dr. Carl A. Schenck and many others. These efforts were brought to a focus at a

meeting held at the Battery Park Hotel, in Asheville, November 22 and 23, 1899, which was attended by prominent men from many sections of the country. An organization was effected, called the Appalachian National Park Association, with George S. Powell, of Asheville, as its president and Dr. Ambler as secretary and treasurer.

With the assistance of five hundred leading newspapers of the United States much public interest was aroused, and in January, 1900, the association's memorial was presented to Congress by Senator Pritchard, of North Carolina. To obviate the difficulties of Federal purchase, the States of North and South Carolina, Georgia, Alabama, Tennessee and Virginia ceded to the National Government the right to acquire title and exempt land for park purposes from taxation.

In the spring of 1900 Congress appropriated the sum of \$5,000 for a survey of the Appalachian Mountains. During the field seasons of this and the following year a force of Government experts from the Bureau of Forestry, the Geological Survey and the Weather Bureau made a thorough investigation of the entire

area. The nature of this investigation can best be given in the words of the Secretary of Agriculture: "The experts in charge of this work examined not only the forests and the general forest conditions as they exist today, but also the causes which have led up to these conditions and the possibility of improving them either with or without Government ownership and supervision. They studied the influences of the forests on the preservation of the streams and soils of these mountains and on the preservation of the water powers and the farm lands along these streams, both within the mountain areas and across the bordering lowlands. In particular, the region was studied as to its relative adaptability to future development along the lines of practical forestry and practical agriculture."

In reading the accounts of these findings which, with the



A bad moment in the olden days, but nobody seems much annoyed! Members of the National Forest Reservation Commission fording the Davidson River.

report of the Secretary of Agriculture, President Roosevelt presented to Congress, one is struck not only with the vast amount of painstaking work upon which they were founded, but also with the overtones of beauty and the spirit of the mountains which vitalize these scientific descriptions.

In an area of mountain chains extending for three hundred miles, with extensive plateaus and stately peaks, many of them rising above 6,000 feet, there were many desirable locations for the proposed purchase. In the summer of 1901 a party composed of Secretary of Agriculture Wilson; Gifford Pinchot, Chief of the Bureau of Forestry; W J McGee, of the Bureau of Ethnology; F. H. Newell, of the Geological Survey; J. A. Holmes, State Geologist of North Carolina, and T. F. Klutz, of Salisbury, made a tour of inspection with a view to establishing a boundary line for the proposed purchase. At this time the Appalachian National Park Association presented to the Government listings of a million and a half acres which could be bought at prices ranging from \$1.25 to \$15 per acre, with no water or mineral reservations.

The only active opposition to the measure came from the lumbermen, but when it was found that logging would be permitted—under restrictions, of course, to prevent denudation—the National Hardwood Lumber Association passed a resolution favoring the proposed reservation in the hardwood region of the southern Appalachians.

For five years the bill led a precarious existence. At each session of Congress it would pass one branch, only to be defeated by nonaction in the other. Because of this lack of definite action on the part of Congress, the Appalachian National Forest Reserve Association—the name of the organization having been changed when it was found that no National

Parks could be purchased at that time—felt that interest should be aroused outside of the South and the Democratic party. Accordingly, Dr. Ambler and other members of the association went North and obtained the cooperation of Dr. Marcy, of Boston, and the Hon. Chauncey M. Depew. Mr. Depew made a stirring speech in Congress and 78,000 copies of it were distributed.

With the constant assistance of the North Carolina Geological and Economic Survey, the Appalachian National Forest Reserve

Association had succeeded in arousing the interest of people in all walks of life, but the officers and other members of the association felt that they had entirely exhausted their financial resources. No member of the association received a cent for services rendered and there were many liberal contributors, but there were also many demands and it seemed wise to turn the furtherance of the project over to an influential permanent organization.

In 1905 The American Forestry Association took up the campaign for the establishment of a forest reserve in the southern Appalachians.

The cause for conservation gained momentum day by day. The National Forests of the West had been created from the Public Domain, but as the East had no Government-owned lands, the Weeks Law was passed "to enable any state to cooperate with any other state or states, or with the United States, for the protection of the watersheds of navigable streams, and to appoint a commission for the acquisition of lands for the purpose of conserving the navigability of navigable rivers."

The passage of the Weeks Law on March 1, 1911, marks definite progress in conservation. It authorized the purchase of private lands for incorporation into national reserves and enabled the Federal Government to contribute to such state fire-suppression organizations as complied with Forest Service standards. In addition to considerations of the influence of the forest on stream-flow, erosion and climate, the land to be set aside in the Eastern States would provide demonstration areas for scientific forest management, reforestation and continuous timber production, as well as for wild-life protection and recreation.

According to the provision of this act the selection of forest lands was to be made by the National Forest Reservation Commission, consisting of the Secretary of War, the Secretary of the Interior, the Secretary of Agriculture, two members from the Senate selected by the President of the Senate, and two members of the House selected by the Speaker.

Here the Biltmore estate entered the story. When the way had been cleared by legislation for Government purchases in this region, George W. Vanderbilt had a preliminary survey



The trees in this forest treasureland are under a management plan, and this great yellow poplar is being marked for removal to give the young growth a chance.



A glimpse into the forest reveals this bit of beauty on the Pisgah, commanded by a great white oak 250 years old.

made with a view to offering part of his holdings to the Government. This survey was made by W. W. Ashe, who, with W. B. Ayers and Overton Price, had represented the Bureau of Forestry in the study of the Appalachian region in 1901 and 1902.

In May, 1913, the National Forest Reservation Commission, headed by Secretaries Garrison, Houston and Lane, and accompanied by Chief Forester Henry S. Graves and other members of the Forest Service, went down to Biltmore and were entertained at Buck-spring Lodge, Mr. Vanderbilt's hunting lodge on Mount Pisgah.

Negotiations for the acquisition of the Vanderbilt lands were cut short by the owner's untimely death in 1914, but were completed by Mrs. Vanderbilt during the following year. Subject to two timber sales which had already been consummated, an area of 86,700 acres was transferred to the Government at a cost of \$433,500, with the reservation of about 13,500 acres of the portion of the estate which contained Biltmore House, and about 500 acres on Mount Pisgah, including the site of Buck-spring Lodge.

Meanwhile other lands in the vicinity of Mount Mitchell and Grandfather Mountain were being examined, looking toward the building up of additional units, which later became part of what is now known as the Pisgah National Forest. Forest Service headquarters were established in Asheville in 1915 and in 1916 the Vanderbilt area was proclaimed by President Wilson as the Pisgah National Forest. At approximately the same time the lands which had been acquired around Mount Mitchell and Grandfather Mountain were combined and proclaimed as the Boone National Forest. Both National Forests were administered from Asheville under the supervision of Mr. Verne Rhoades, a graduate of the Biltmore Forest School in the Class of 1906. Later an area known as the French Broad Unit, lying along the French Broad River between North Carolina and Tennessee, was included with the two National Forests already established, and in 1921 the entire tract was proclaimed by President Harding as the Pisgah National Forest.

Mr. Rhoades resigned from the Forest Service in 1925 to become executive secretary for the North Carolina Park Commission in charge of the acquisition of lands for the new Smoky Mountain National Park. He was succeeded as supervisor by M. A. Mattoon.

At present the Pisgah National Forest comprises the Grandfather, French Broad, Mount Mitchell and Pisgah divisions, with an area of approximately 325,000 acres, embracing some of the most historically interesting places in this section.

Before the white men discovered Hot Springs, in 1778, Indians had been in the habit of coming to these healing waters, and Daniel Boone ranged the wilds of Grandfather Mountain in his exploring and hunting expeditions. From their homes in the mountain fastnesses staunch patriots rallied under the Council Oak at Quaker Meadows, in Burke County, from which point they made a forced march through the wilds of this forested area to Kings Mountain, where their victory over the British forces under Colonel Tarleton decided the fate of the Revolutionary cause in the South.

The forest guards the water supply of many surrounding towns and protects the watersheds of the French Broad and Catawba Rivers. Into this magnificent playground of giant peaks, grassy balds, balsam-clad domes and rock-



In the Mount Mitchell division is the Catawba Game Refuge. These are the Cascades of the Catawba River, over one hundred and fifty feet high.

capped summits, owned by the humblest citizen in common with the wealthiest taxpayer, thousands have come for the exhilarating air and the inspiring companionship of trees, wild flowers, birds and animals that know not the hand of the spoiler. Mount Pisgah with its quaint inn, the Pink Beds and other points of interest are easily accessible by automobile, while Dr. Schenck's old trails and Lookingglass Rock are much favored by pedestrians.

Under the skilful management of experts the forests are being brought into condition for perpetual production. Millions of feet of lumber and numerous other forest products are each year incorporated into the industries and homes of the nation; but this is accomplished under regulations by which the forest will steadily increase in productive value.

Golden Fins of the Sequoias

Hidden Streams of the Sierras Yield Rare, Gamey Trout

By CLAUDE M. KREIDER

PERHAPS it was an immediate desire for solitude that prompted us to enter the great range by the back stairs. Also I wanted my companion from the East to experience that rare paradox of crossing the Mojave Desert one day and climbing to frozen snowbanks the next.

Thus, on our second day out, we camped in a wide, forested basin beside chuckling little Cottonwood Creek, and cast our flies to enough eager golden trout for our supper. Our saddle horses and pack mules, after seven hours of climbing from the hot valley, reveled in the rich grass of the meadow before our tent. Later we climbed to the lakes, where we took goldens up to a pound in weight, and cast our lures to the big fellows.

Cottonwood Lakes are deep and very blue, and lie in a closely connected chain under beetling granite walls which rise to the 14,000-foot crest of Mt. Langely. To the west is Army Pass, over which the trail leads to Mt. Whitney. Upon examination we found this trail to be still impassable because of deep drifts of frozen snow. This route enables

one to reach Whitney's base in an easy day from Golden Trout Camp, which nestles in a fine grove of foxtail pine and tamarack and offers splendid accommodations for climbers and fishermen.

The fame of the goldens lures vacationists here, for practically every stream, every lake and lakelet, has its quota of these beautiful and gamey trout, which are not found in any other region on earth. In this basin they have been planted for more than twenty years, and in the lakes they have been taken up to a weight of seven pounds. They will nearly always rise to the fly, and are perhaps as finished acrobats in the air as their famous cousins, the rainbows. So beautiful are these trout that a word description is altogether futile. One must catch, then breathlessly examine, his first golden.

We did not tarry long here, for our purpose was to explore further back, and to fish waters where the trout knew little, if anything, of the artificial fly. So we packed up and leisurely climbed into Horseshoe Meadow, a beautiful



Little Whitney Meadow is typical of the many park-like stretches in the high Sierras. Between the sod stream banks in the background meanders Golden Trout Creek, in which the shining goldens are always to be seen.

green basin several miles in area. In Cottonwood Pass, at 11,000 feet, we crossed the main crest of the range, and stood upon the Pacific slope.

Somewhere about here, within a comparatively short time, the new trans-Sierra highway, connecting Owens Valley to the east with the great San Joaquin Valley, will cross the range. Thus, at a thousand feet higher than the famed Tioga Pass of Yosemite, the motoring public may enter the vast back country of the enlarged Sequoia National Park.

Just over the summit of the pass is born a tiny stream which has no like in all the world. It is Golden Trout Creek which, by a peculiar quirk of nature, gave to fishermen and scientists this beautiful fish. All the goldens in other high Sierra waters were introduced from parent stock in this little brook. A scientific explanation for the bright golden color of these trout is the bright yellow gravel of the creek bed, which may possibly have influenced their color through many centuries.

The creek gathers volume as one follows it westward down Whitney Meadow, and embraces many other placid little brooks. We rode silently over the green meadow grass and saw hundreds of the shining trout in the clear water. My companion, who had come from the East to study the goldens, caught nineteen of them on his flies.

Very gradually the trail descended and we noted a change in the forest trees. The pinon and foxtail pine were here replaced by firs, which increased in size to noble columns six feet in diameter before we finally reached the rim of Kern Canyon.

Perhaps the greatest charm of this wilderness is the diversity of climate and surroundings due to the varying changes of altitude. We descended from the high country, with its alpine lakes, jagged granite peaks and frosty nights to the verdant mid-summer of the Kern Canyon, at 6,000 feet, all within a few hours. Here the mighty river surges musically through walls of park-like groves of giant firs and pines. At the Camp Lewis Ranger Station we registered, then turned up the canyon and rode three miles to Funsten Meadow. We unpacked and prepared a quick supper for, tired as we were after seven hours in the saddle, we wanted to cast a few flies to the fighting Kern rainbows.

At our front door, across a stretch of green lawn, the river

swirled in a wide, swift riffle, in which trout were rising. I cast across the water, missing the fish with usual "first of the season" anxiety. A moment later I hooked and landed a ten-inch beauty—then another. My companion did likewise. Working gradually downstream we approached a log jam. My fly trailed in the current almost under it. A



Above timberline—fishing for the golden beauties. The mountain peak is Mt. Barnard, 14,003 feet high. The fame of the "goldens" lures vacationists here, for every stream, lake and lakelet holds these beautiful, gamey trout.

fish struck, and surged out into the current, fighting furiously.

He turned back toward the interlaced mass of submerged logs as I snubbed him to the limit with my five-ounce rod. Again he went into the swift water. Then he leaped, and my "three-pounder" proved to be only a sixteen-inch fish. So savagely do they fight in that unbelievably swift current, we many times found our "monster" trout to be only a pound-and-a-half fish.

After netting that trout I quit for the evening, for we had enough for supper. Next day my companion elected to fish upstream from camp while I fished down. We agreed to keep only a half dozen pan-size trout for cooking, and to return to the water the fish that were unhurt. In the first swift riffle I landed two that were well over a pound each. Others followed, to be gently slipped back after giving up the glorious fight, and by midmorning I had only fished to the lower end of the meadow, so continuous was the fishing water. At camp I found that my companion had had similar sport, and was enthusiastic.

Days pass quickly in these canyon camps. There is so much to see when one tires of fishing. Many deep gorges offer delightful exploring trips, and usually, after threading their rock-strewn beds for a short distance, one comes to a high granite barrier, over which pours a silvery waterfall. Tree and bracken ferns grow in miniature forests in these densely shaded depths.

Deer, with fawns, are found hiding, and often cougar



The great charm of this wilderness country is the diversity of climate and surroundings, due to the varying altitude. High peaks, with alpine lakes, verdant canyons and mountain meadow stretches, with park-like groves of giant firs and pines conspire to lure the lover of the outdoors. This is Funsten Meadow.

tracks will indicate where the big cat has lain in wait for them.

In the upper Kern Canyon conditions are ideal for the permanent camper. Fishing is unsurpassed, even for the novice who is trying out his first fly. All of the conifers common to this elevation grow at their best. We had about us sugar pines, yellow pines, red and silver firs and cedars. Wild flowers bloom in unending procession. We were only eighteen miles from Mineral King, reached by a good road from San Joaquin Valley points. The trail crossing Franklin Pass is through a region of wild alpine splendor, in direct contrast to the intimate, arboreal surroundings of the canyon.

Reluctantly we left Funsten Meadow to take the upriver trail for the high country again, but a certain little-known lake lured us on. All day we rode along the singing river, which gradually lessened in volume as its tributaries, many of which dashed over the canyon walls in tremendous falls, were passed.

The trail up the main stream climbed past a long succession of white cascades and falls, and then ascended a last giant apron of glacial polished bedrock into the upper basin. Here we found more than a score of clear lakes of varying sizes, each set snugly in its own little grass-encircled glade. To the west, north and east jagged, snow-

(Continuing on
page 364)



One day we made the long, gradual ascent into Shepard Pass, where, at 12,000 feet, lay a huge snowbank thirty feet in depth. With our loaded pack animals, walking seemed highly desirable.



Allen Fraser

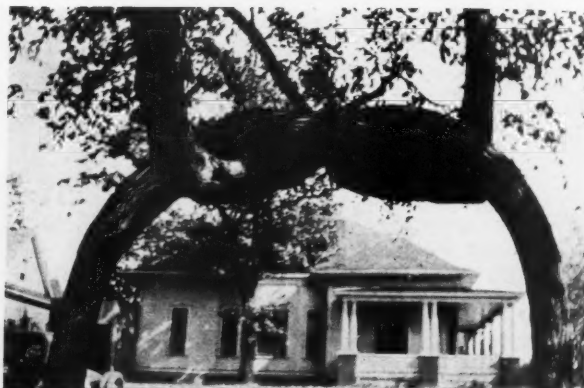
Seemingly vicious, "The Hound of Luckerstown" is but a coral formation off the shore of Luckerstown, Bermuda.

The first sign of spring in the Canadian forests. A woodsman posting the trail of the summer forest tourist.



H. Armstrong Roberts

ON AND OFF



Fred McWhorter

When young these trees were twined together at Shawnee, Oklahoma. They are known as the "Affection Elms."



T. Carl Haycock

Captor and captives. Young fawns bask in the sun with the dog that found them on the Kaibab National Forest, Arizona.



Arnold Hausu

The big trees of New Zealand answer the call of the lumberman. Massive kauri logs ready for the sawmill.

THE TRAIL



J. L. Woodbury

Near Fryeburg, Maine, is this elm with the twisting branch, which forms an almost perfect "O."



R. L. Fromme

But three weeks old, this lynx, known as the "Melba Golf Lynx," seems bored with the world as it sees it in an Oregon forest.



Mrs. C. R. Thompson

Said to be the largest elm tree in Minnesota, this old tree at Cannon Falls has a limb spread of 100 feet.



B. L. Brown

Undaunted plant life. Hairbells and blueberries, with hardy pines, cling to life on this rock in Lake Superior.

Where cougars are caught to order. The cabin of Jim Owens, old-time hunter, on the Grand Canyon Trail.



Goldman-Locke



Mexico's pine forests are similar in character to the western yellow pine forests of the Rocky Mountain region.

Mexico's Pine Forests

By WILLIAM D. DURLAND

MY INTEREST in Mexico's forestal affairs is primarily prompted by the fact that I am, by education, a forester; but also, and of equal importance, by the fact that this neighbor republic, adjoining our border on the south and comprising better than 100,000,000 acres of timberland, contains an immediately accessible body of cheap virgin pine timber.

In 1900 when the migration of the lumber industry from the white pine region of the Lake States to the southern pine region of the Gulf States was materializing, pine stumpage could be purchased from the government land agents at \$1.25 an acre. At this time \$10,000 would have acquired about 100,000,000 feet of the finest long leaf pine that ever grew, and with it 10,000 acres of fertile land with probable sulphur, salt, oil, or gas deposits beneath its surface. It was this timber resource, cheaply acquired, that accumulated the fortunes, and created the industry which contributed so largely to the South's development of the past two decades.

But I am concerned with timber from a commercial standpoint and where it may be obtained now. Practically the entire forest area east of the prairie lands of Texas, Oklahoma, Kansas and the Dakotas has been cut over and

that which remains is strongly held. The Pacific slope of California, Oregon and Washington, and the Inland Empire of Idaho and Montana containing the principal remaining domestic supply, are already in large and substantial ownerships. The Rocky Mountain region, west of the Prairie States, extending from Idaho through Colorado into New Mexico, has possibilities but the stumpage is not, as a rule, cheap. Alaska suggests itself along with portions of Canada, but these being primarily pulp-wood regions affording supplies to paper-mill companies, the problems immediately assume complicated proportions. Mexico is the remaining region to consider and because of its past record of revolutionary and political disturbances, it may appear unattractive.

It is pointed out that the quest and ownership of desirable cheap pine stumpage in Mexico is not a suitable occupation for one seeking unmolested comforts. Yet Mexico offers no more difficulties than did the Gulf region, Michigan, Pennsylvania, or other portions of the United States. It is entirely a matter of viewpoint and not fact, that south of the Rio Grande one would be made to dance to the tune of Mexican firearms.



Logging is carried on in the same way as in western United States, some of the operations reaching considerable magnitude.



Mexico's pine forests extending 600 miles south of the Rio Grande, are as a rule open and park-like.

Determined to look over the Mexican pine timber belt from the air, and to size the situation up for myself, I left El Paso, in a glorious sunrise and an airplane, headed south. I saw pine timber from within a few miles south of Juarez to Mexico City; from Guadalajara to Tepic; from Mazatlan to Durango. I saw pine timber in the eight states of Chihuahua, Sonora, Durango, Sinaloa, Jalisco, Michoacan, Tepic and Zacatecas. When informed that I could possibly annex for ownership as much as 2,000,000 acres of pine-covered timberland in one block for the sum of \$200,000, or twenty cents an acre, opportunity indeed was crashing the door. At the estimated wood volume this price calculates four cents a thousand board feet which is more in line with the stumpage prices of the early American timber days than any now accessible body of softwoods on the North American continent.

Beginning just below the Rio Grande and extending southward in a bandlike strip about 100 miles wide and 600 miles long, straddling the divide summits which separate the water flowing east over the central mesa into the Gulf of Mexico, from those flowing west over the Pacific slope into the Gulf of California, is found the backbone of Mexico's pine forests. This pine region contains, by various estimates in excess of one hundred billion feet of timber on about fifty million acres. While western Chihuahua and Durango, eastern Sonora and Sinaloa, of the northern provinces, and western, and central Jalisco and Michoacan of the midwestern provinces, are the principal pine locations, portions of the connecting provinces of Tepic and Zacatecas are also included.

Similar in character to the western yellow pine forests of the Rocky Mountain region, Mexico's pine forests have a

natural preference for the temperate climate of the higher altitudes. Forest stands are fairly dense at 5,000 feet elevation, but at 7,000 to 9,000 feet they appear at their best. The lower limits of the pine belt find chaparral, juniper and pinon pine prominent in the composition, merging at a higher elevation into open stands of Chihuahua or Mexican pine, followed by the denser stands of yellow pine, Douglas fir, white fir, spruce and bald cypress in the draw-heads and on the ridge tops. Oaks are frequently found intermixed with the better pine stands, the extent of mixture and degree of occurrence varying with the locality. Botanically there are several species of pine but in point of composition Mexican and western yellow pine make up about ninety-five per cent of the pine-timber census. From the standpoint of volume, within the pine belt proper, seventy per cent is pine, twenty-four per cent oak and six per cent miscellaneous hardwoods. Of the genus *Pinus*, the species *arizonica*, *chihuahua*, *pondosa*, *leiphylla*, *teocote*, *ayacahuite*, *hartwegii*, *montezuma*, *oocarpa*, *pseudostrobus*, *altamurani* and occasionally the pinon pines, are exploited, manufactured into lumber and sold on the Mexican and United States markets competitively with the California white and ponderosa pines of trade.

The topography of this pine region consists of a succession of comparatively flat mesas and ridges alternating with valleys and canyons. The latter are relatively shallow at high elevations but deepen as they reach the lower altitudes. Soil is a loam, dark red to black, well drained and fertile. It is formed from the disintegration of rhyolite and basalt lavas, both of comparatively recent geological origin, and is continually fresh to moist, except on the more exposed ridges and southwestern slopes (*Continuing on page 364*)



The pine forests below the Rio Grande produce thousands of railroad ties yearly for the National Line of Mexico.

To the Last Bird

Mankind Is Watching the Decline and End of the Heath Hen

By OLIN S. PETTINGILL, JR.

Photographs by the Author

FOR the second spring in succession the heath hen returned to his traditional "booming" field on the island of Martha's Vineyard, Massachusetts. He awaited, as in years past, the arrival of his kin to take part in the weird courting performance. But he waited in vain, for nowhere in the broad lands of the universe can be found another of his kind. He alone lives on, the last heath hen in existence, clinging to life tenaciously as if to keep his race from increasing the phantom hosts of wild life in America. The story leading up to this solitary bird is one which can be divided into two consecutive periods. The first deals with it as a species of the Middle Atlantic and New England States, a bird definitely recognized as a part of the colonial wild life and one of the first to decrease with the onslaught of the white man. The second pertains to its insular isolation and gradual depletion due to circumstances to which man has directly and indirectly contributed. Designated by the names of heathcocke, he then, pheasant, and grouse, this eastern species of pinnated grouse was plentiful in certain parts of Massachusetts. For instance, Wood in his *New England's Prospect*, published in 1635, writes: "Heathcocke and partridges be common: he that is husband and will be bestirring betime, may kill halfe dozen in a morning." According to Governor Winthrop in 1840, "they were so common on the ancient bushy site of the city of Boston, that

Although Mr. Pettingill's observations of the last heath hen were made in the spring of 1930, he reports that the sole survivor of the birds that served the early Pilgrims as food returned this spring to its traditional "booming" field, putting to an end the rumor that the Martha's Vineyard rooster was dead. The last heath hen was seen less than two months ago, captured for observation purposes and released.

Recently the United States Biological Survey failed in a search for a mate for the surviving cock. It was begun more than two years ago. Thus the breed must fade out of existence with the death of the lone remaining bird shown below.



The lone bachelor—last of his tribe, must witness the extinction of his species. Though his death has been reported several times, the report was false, as he has been seen within the last two months, according to the author.

laboring people or servants stipulated with their employers not to have Heath-Hen brought to the table oftener than a few times in a week."

Dr. Alfred O. Gross, of Bowdoin College, in compiling the meager existing records, states that the former range of the heath hen extended from Massachusetts, New Hampshire and probably Maine, southward through Connecticut, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Virginia and possibly the Carolinas. Even then, however, the bird was in no way uniformly distributed and was restricted chiefly to open, sandy lands. From this it would seem that the clearing away of the forests by the settlers and the sowing of grain and grasses would favor its increase. But other factors overbalanced this impetus, and by the nineteenth century the decline in numbers was evident.

The State of New York, in February, 1791, sounded the danger signal when it enacted a law entitled "An Act for the preservation of the Heathen and other game." Although this law stood as a first step taken by the Government toward the conservation of the heath hen, it was but slightly heeded. Poaching went on. In 1844 the heath hen was believed to be extinct, or nearly so, on Long Island. It continued its survival in favorable places throughout New Jersey and Pennsylvania. There are no records of the heath hen on the continent after 1869.

Owing to a "biological accident" the heath hen was still to be preserved for a few human generations to come on Martha's Vineyard. Partially free from the encroachments of man and some of the predacious animals of the mainland, it retained its ancestral customs in a favorable habitat. The

esting birds in the East from the standpoint of avian courtship, however. When this bird was plentiful various "booming" fields were selected where, during the early morning and late afternoon hours, flocks would gather to feed and perform their courtship antics. Out of the uncer-



The last "booming" field of the heath hen. Here for the past two years the one remaining bird has made regular spring-time visits—instinct undoubtedly urging him to continue to seek a mate. The blind shown in the center of the picture was erected for the purpose of securing pictures and making close observations.

ensuing history of the bird leading to the present day has been one of fluctuation in numbers of seasons when it promised to return to its original status, of efforts made by legislature and organizations to bring about suitable conditions for its increase. Then came the sudden drops in numbers when some turn of fate reduced the flock to a lower level than ever before.

The decline of the heath hen has been caused for the most part by man. Unlike many birds its has been unable to cope with the changing conditions which he has brought about. Where man has eliminated some of its natural enemies he has in turn introduced others equally, if not more destructive. Outstanding among these are the cats. Being a summer resort Martha's Vineyard has a winter population of 5,000 people and a summer population of 50,000. Many of the summer people bring cats to rid their summer homes of rats and mice, and these carnivores are allowed to remain with the result that they have gone wild and have been one of the worst enemies of the heath hen. Hawks and owls are found in exceptional abundance and were observed in several cases to prey on the heath hen.

Disease in the form of parasites no doubt have been factors in the decline of this bird. With the small numbers of recent years, sterility and excess of males have also been considered logical reasons. Fires among the scrub oaks during the nesting season probably interrupted the production of broods that might have prolonged the existence of the species. Thus, from 1916 to 1927, the birds decreased from 2,000 to twelve, two of which were females. In 1928 the census showed but three males. Today only one remains.

Economically, there will be no loss in the extinction of the heath hen. It was never held high in the estimation of sportsmen. Its direct, ponderous flight made it an easy target. Its meat as a food was not relished particularly and only in the early days of this country was it of any importance commercially. It has been sentiment alone which has prompted conservation.

With the passing of the species goes one of the most inter-

esting birds in the East from the standpoint of avian courtship, however. When this bird was plentiful various "booming" fields were selected where, during the early morning and late afternoon hours, flocks would gather to feed and perform their courtship antics. Out of the uncer-

tain light of dawn they would appear, singly and in flocks, some on wing, and others walking. A "three-ringed circus" ensued. Cacklings and "tootings," accompanied by the fluttering of wings and struttings, made the show a lively as well as a varied one. Flashes of brilliant orange from the inflated air sacs of the males were followed by a hollow "whoooooooooo-doooooooooh" sound caused by the escaping air. At the same time they took on a grotesque outline with their pinnate feathers of the neck thrown forward, wing primaries outstretched, and neck extended. Intermittently their feet would patter on the ground. To all this the females were indifferent onlookers.

For the last three springs the author made visits to an age-old "booming" field, the last one to be used by the heath hen. The field itself is nothing out of the ordinary, being an old meadow on the highway between Edgartown and West Tisbury. Nearby is the farm of James Green where bird lovers the country over have stopped to get a glimpse of a vanishing bird. In the center of the field a blind has been erected by the Division of Fisheries and Game of Massachusetts and baited so as to attract the heath hen. Thus it is possible to obtain observations and photographs at close range. My first visit to the blind was a memorable one. My notes, in part, read:

"It is still dark, although the April morning cannot be far away. Fog—heavy sea fog—hangs about the blind. Stillness prevails, interrupted at intervals by the wail of some distant fog horn. A Vesper sparrow soon pipes up, followed shortly by the 'rain song' of the robin. Darkness creeps away to the scrub oak plains bordering the field. Gray light seeps in through two lookout holes. Now is the time for the heath hen!"

"Time has elapsed and still there is no sign. The caroling of the early spring birds does not take the place of the mating call of the heath hen. The sun is glistening across the moist and as yet leafless scrub oaks. A bird with direct flight and partridge form alights a hundred feet away. Glasses prove it the heath hen, (Continuing on page 383)



On the Bayou Avoyelles—a Louisiana waterway once extensively used for transportation. Its shores are now lined with old field stands of gum and other hardwoods.

Cotton Fields of Yesterday

By G. H. Lentz

IN THE early development of Louisiana the large plantations were invariably located along a river, bayou, or other navigable waterway. Roads or highways did not exist, and the so-called "traces" were mere trails through the woods that were worn through continuous use by Indians, trappers and voyageurs. With bulky crops such as corn, cotton and cane it was essential to have transportation to Baton Rouge, New Orleans, Natchitoches and Mobile, whence direct shipments to the mills of the northeast and to the markets of Europe could be made. During the high-water stages it was possible to get supplies and equipment up to the headwaters of some of the more

sluggish streams. Thus a map of Louisiana, made prior to 1850, would show the farming population and the few towns concentrated along the rivers, bayous or man-made canals.

The settlements along Bayou Macon in northern Louisiana and Bayou Teche of the Evangeline country in the southern

portion of the state are outstanding examples and the Teche is still an important waterway.

After the Civil War a sudden change took place when the plantation owners could no longer depend on slave labor. Many of the planters lost their fortunes as well as their slaves during the war and later had insufficient funds to carry on farming with hired labor, had there been any



The beautiful old plantation home of the Weeks at New Iberia on the Teche. Built in 1852, it is a fine example of the manor houses of early colonial days.

available. Wholesale abandonment of large plantations was in order and in many instances these plantations were never reclaimed. With the advent of the railroads and later, with the development of highways, it was no longer necessary to depend upon the waterways for transportation. Subsequent to 1880, when new areas were opened up for farming, the aim was and still is to locate farms near a railroad or along an improved road.

During a year's work in the hardwood bottomlands of Louisiana I was continually running across some of these abandoned plantations, mute reminders of earlier colonial days. In the southern portion of the state a magnificent row of live oaks may lead to a few scattered walls or a pile of brick, all that is left of an old manor house. North of the range of the live oak it is often more difficult to trace the old roadways but a tell-tale heap of brick, an old cistern, drainage canals and possibly a few low levees along the bayou bank, tell the tale equally well. Nature has taken steps to hide these evidences of former cultivation and trees have invariably been used as tools.

In Madison Parish, a sixty-year-old stand of cottonwood and red gum was found on land where cotton once flourished. The cotton rows

were still discernible even though some of the larger trees were three feet or more in diameter. On the old Richardson Plantation in this parish tragic events followed the war. The owner lost his slaves, his wife died from a nervous breakdown, and a few years later, after he was completely bankrupt, he also died. In its heyday this plantation worked over a hundred slaves in the cotton fields and close to a thousand acres were cultivated. Years of hard labor had developed a system of drainage canals for the tract and a levee protected the area from the spring overflow. Two large heaps of brick showed where the chimneys of the manor house had stood, and indicated its ample proportions. A cistern, carefully bricked up and still full of water, was located at the rear of the house near what may have been the "gallery." Several hundred yards from the house a row of smaller brick piles was all that could be seen of the slave quarters.

After the plantation was abandoned it was not long before the forest again claimed the land. On the bare sites cottonwood seeded into pure stands while red gum and other hardwoods reclaimed the pastures. Now, about sixty years from the time the last farm crop was harvested, a timber crop is being cut. For several months an average sized saw-

mill has operated entirely on the cottonwood logs cut from the stands in the old cotton fields. The land is still potential farm land but it lies miles from a highway or railroad and the bayou flowing through the area is no longer navigable.

The history and origin of many thousands of acres of young timber can be traced back in this way and the uniform even-aged condition of the stand forms a great contrast to the all-aged condition of the virgin stands. But not all of the young stands are found on lands abandoned between 1860 and 1870. Many stands may be only sixteen to twenty years old and another story lies back of their origin and again it is a story of abandoned cotton fields.

The cotton industry and farming in general in Louisiana had fully recovered by 1900 and new lands were being cleared, new "deadnings" made to provide a larger acreage

for cotton production. Then in 1908 the boll weevil began its depredations. Profits of former years were wiped out with the advent of this pest and again the abandonment of farm lands began. The one-crop system under which cotton has been grown left no alternative and thousands of acres were no longer tilled. With ideal seed-bed conditions and with yearly



These are cottonwood logs cut on the old Richardson plantation. Prior to 1860 this land was given over to cotton fields.

seed crops of red gum and cottonwood it was only a few years before these species became established and they are now making excellent growth in diameter and height.

The shortage of farm labor during the World War, the high wages paid to laborers in northern factories, and the hard times of 1920 and 1921, were other factors that brought about a further increase in the area of old, abandoned fields. In the Northern States and in other regions with a shorter growing season than the South, and even in the uplands of Louisiana these farm lands may lie idle for years. In the rich bottomlands of the large rivers such is not the case and after land has "laid out" for a few years the seed from nearby trees reseeds it and an old field stand soon becomes established. With new methods of farming and more intensive cultivation through the use of improved farm machinery, other areas will be abandoned in the future and new hardwood stands will result. If they are handled wisely these stands will help meet the increasing demand for southern hardwoods and a timber crop in place of a cotton crop will be harvested. A few farsighted lumbermen who own young hardwood timber are cutting it under a logging plan so that only the larger trees are cut and a thrifty stand remains to produce another cut in from ten to fifteen years.

State Forests and the Unemployed

By

AUSTIN F. HAWES

ONE of the great difficulties in the relief of the unemployed is to find constructive work which can be done immediately. Any public building program requires long preliminary negotiations, in the selection and purchase of the site, preparations and approval of the architect's plans, and the letting of contracts. On the other hand, in public forests men can be put to work almost at once provided, of course, there is a skeleton organization which can be expanded.

In the early winter, when the unemployment situation became acute in Connecticut, the State Board of Finance and Control, under Governor Trumbull, felt that it would be well to try out some of the unemployed on work in the state forests and parks, and allotted \$10,000 for the experiment. Since the forests and parks are under separate bureaus, the money was divided—\$7,000 to the forests and \$3,000 to the parks. Several crews were immediately organized and altogether about eighty men were employed in the state forests during the period from January 7 and February 6. With the exception of a forester employed for a few days, all of the inspection and planning was carried out by Department men. Consequently only their travel expenses were charged against the emergency appropriation. It was necessary, however, to purchase a large number of axes, saws, brush scythes and machetes to carry out the work. Altogether eighty-eight per cent of the initial appropriation was spent on payrolls, nine per cent on expenses incident to administration and supervision, and three per cent for the purchase of tools.

As Dean of the Graduate School at Yale, Governor Wilbur Cross has always taken a keen interest in the Yale Forest School and forestry. Therefore he saw the practicability of using a large number of men in the state forests and enthusiastically incorporated the idea in his inaugural

message, urging an emergency appropriation for the purpose. On February 4 he signed a bill appropriating \$100,000 to the State Park and Forest Commission to be used in the employment of labor for the improvement and development of the state forests and parks.

The existing crews were immediately enlarged and new crews, of about twenty men each, were organized under practical woods foremen. All of the foremen were under trained foresters and the work executed in accordance with forestry principles. All applicants were registered and those with the largest number of dependents had the first call. In the communities near the forests at least one man in every five had a car and was able to transport the others. In the case of more distant cities the men were transported by the cities, which were remunerated with free wood for distribution to the poor. As there were no state forests near the large cities, camps were established in the forests. In these camps the men received thirty cents an hour and board. All other laborers received 40 cents an hour for time employed, which was limited to five days a week. The woods foremen receive fifty cents an hour. A few extra foresters were employed on

a temporary basis at salaries ranging from \$100 to \$150 a month and expenses. A large percentage of the men had had experience in chopping wood at some period in their lives—some of them had chopped wood in Canada, in Russia, in Italy and on New England farms. On the other hand, there were artists, musicians and those who had never worked out of doors. Such men were used chiefly in burning brush.

One of the main arguments for the appropriation was to safeguard the seventeen state forests from fire. These forests, which aggregate 57,000 acres, are in separate blocks, some of them containing several thousand acres. The plan called for dividing these by fire (Continuing on page 332)



Some scenes in one of Connecticut's State Forests that furnished work for hundreds of unemployed men last winter. Above—A forest road in the People's State Forest. Left—Dead chestnut is removed from the forest for fence posts. Right—Cordwood cut in thinning operations on the Paugnut State Forest.



EDITORIALS

"Burnin' Meat"

BEAUTY in nature is godliness. Loose and lethargic human habits which spell ugliness, uncleanness, or deformity are as truly ungodly in nature as they are in life. A clean and unspoiled woodland is as welcome and as inspiring as a clean and unspoiled character; happy and healthy children of the woodland—birds and beasts of the wild—are as beauteous as the happy and healthy children of mankind.

But—turn to page 325 and study the pictures. Then read Mr. Kipp's narrative of "burnin' meat"—a term given by old-timers to the burning of living creatures of the wild by forest fire. The thought is unutterably horrible, the story ugly, the pictures ghastly. Yet it is a story every outdoor-loving American should read and retain. It is a story that challenges sportsmen if they hope to keep the forest and streams populated with game animals, birds and fish. It is a story that discredits the humanness in humanity, that challenges those who profess godliness.

While Mr. Kipp's story is lurid, horrible, one of extreme suffering, agony and death, it is enlightening in its truth. He tells of what the Wisconsin Conservation Commission has found about the terrific and appalling slaughter and maiming of animals, birds and fish in forest fires. He tells of great numbers of deer found burned to death after a single fire, eighteen in one small area, and of deplorable, almost undecipherable scenes when the smoke had cleared away. Following one large fire sixty per cent of the deer surviving the flame suffered badly burned feet.

Without reserve he tells of the finding of deer walking on their knees after fire had seared away their feet and forelegs, of fawns so badly burned that they were easy prey even for dogs, of fire-crippled does gored to death by cows.

He tells of animals without number dying from disease and from suffocation by gas and smoke; of grouse, quail, and other birds succumbing; of rivers and lakes filled with dead fish. Even dogfish, one of the hardest to kill by lack of oxygen, were found in a helpless condition. Frogs and crayfish perished by the thousands.

But most damaging was the dangerous concentrations of game and birds following a fire, and the serious effect on reproduction of their kind. Without cover, without food, they became easy prey in these concentrations for the predators—coyotes, foxes, owls and hawks.

It is an ugly picture. And its grimness is accentuated by one indisputable fact—that ninety-nine per cent of all of Wisconsin's forest fires find their origin in human carelessness or maliciousness. Wisconsin's problem does not differ materially from that of the other states—in each case it is the thoughtless and careless user of the woodlands killing the things he pretends to love, destroying the godliness in nature.

The true sportsman has long frowned upon violations of game and fish laws, chiefly because they abuse and restrict his privilege. Yet in Wisconsin forest fires destroy more game and fish than all game and fish law violations. When all is considered, forest fires throughout the country, ninety per cent of which are caused by users of the woodland, consume more game and fish, directly and indirectly, than the guns of all the hunters and the hooks of all the anglers. Is this not a challenge to those who would restore and preserve America's wild creatures? When those who go to nature for recreation or for beauty are made to sense "burnin' meat" in every loose and lethargic habit, the beauty of living things shall endure.

Building Forest Stability

PRESIDENT HOOVER'S Timber Conservation Board is launched upon the herculean task of unravelling the tangled skeins that seem to account for the prostration of the forest industries. The available supply of wood is being drawn upon with a wasteful and competitive haste that has created overproduction with its attendant demoralization of markets, investments and industrial forest stability. The situation confronting the forest industries is not a child of the present business depression. It has been developing and becoming more acute during the past decade and longer. It is so far-reaching and so interwoven with American industry and economic prosperity in general that it merits widest publicity and public understanding.

The primary task before the Timber Conservation Board is the stabilization of the forest industries in the interest of

better conservation and more orderly production and marketing of wood products, and hence the maintenance of prices which permit operations at a profit and the growing of timber as a permanent industry. The attainment of these objectives is not an easy task. Even if voluntary mergers to curb output are condoned, the physical difficulties in perfecting cooperation among thousands of operators are at once apparent.

If control of output is recognized through the medium of interstate compacts, what shall the public receive in the interest of the consumer? Price fixing? It is difficult to conceive of this. Public supervision of woods operations, which cannot be discriminatory save perhaps for farmers woodlots, in the interests of good silviculture and sustained yield? That, too, is difficult to picture particularly in view

of our complex and decentralized political structure. There is reason to believe that for an indefinite period wood like other commodities will continue to be subjected to the old law of supply and demand.

This being the case, it would seem that permanent stabilization of forest industries must be based upon far clearer knowledge than at present available of what lands are really suitable for commercial timber growing. Present knowledge on the subject is confused, inaccurate, and misleading. It would be helpful to the industry to write off the books, figuratively speaking, the millions of acres of low-grade forest lands that give no promise of profitable operation and are thus a competitive and financial liability. The chief asset of these lands is their public utility value for soil, water, recreation and wild life conservation. Responsibility for their management for these purposes will sooner or later fall upon the public. With them out of the figuring, so far as commercial forestry is concerned, a land foundation for permanent forest industries would be clearly defined and the building of permanent stabilization greatly clarified. Knowledge that will make possible the concentration of commercial timber growing to soils and areas that promise reasonable returns for time and money expended will hasten tremendously progress towards eventual stabilization and intelligent forest land utilization.

Present-day knowledge does not permit any such delineation of commercial and non-commercial forest lands. The first step to this end would be a survey or at least a reconnaissance by some such body as the National Forest Reservation Commission, or it might be included by the Forest Service in its national timber survey recently authorized by Congress. Such a survey could determine roughly at least the forest areas of public consequence chiefly valuable for public utility purposes and those chiefly adapted to industrial effort. This done, it should not be difficult to outline basic policies of forest land utilization. On the one hand there would be a clear picture of the areas which should be managed by the states, the Federal Government, or other public agencies; and on the other hand, the areas upon which private industry can concentrate its efforts with some assurance of financial success.

While this knowledge would not necessarily give immediate relief to the present stress of the forest industries, it is, we believe, a basic factor in planning forest stability for the future and in developing the intelligent use of all forest land. After all, the problem that should disturb us today is not just the fate of wood as a commercial product, but the fate of forest land and its inherent natural values and public utility.

Twenty Years of Forest Acquisition

TWENTY years have passed since Congress passed the Weeks Act. The Act contemplated the acquisition of six million acres, to be selected for the protection their forests would give to navigable rivers in the White Mountains of New England and the Appalachian Mountains of the East and South. Thirteen years later, with the original program less than forty per cent completed, Congress passed the Clarke-McNary law, expanding the authority of the Government to acquire lands on the watersheds of navigable streams, for the production of timber, as well as for the protection of the streams. Thus was the National Forest program of the eastern states extended to include the cut-over areas of the Lake States, and the pine lands and mountain sections of the South. Accordingly, in the spring of 1923, the National Forest Reservation Commission recommended expanding Federal ownership of forest land in the eastern half of the United States to 15,000,000 acres during the succeeding ten years at a contemplated cost of \$40,000,000. This fiscal program has not received the support of Congress which continues to hold appropriations to \$2,000,000 a year.

Twenty years of forest acquisition and the original program is still uncompleted. The ups and downs of annual appropriations show a total of \$23,000,000 expended and 4,500,000 acres acquired. In addition, more than a million acres were reserved from the Public Domain or acquired through exchange with the State of Michigan. This brings the total acquired area to 5,750,000 acres. The objects of the law have been expanded but nowhere can one point to a completed project. No better example of this is available than in the Pisgah National Forest in the mountains of western North Carolina.

Conceived more than thirty years ago, the creation of this forest is described in Miss Laxton's article in this issue of

AMERICAN FORESTS. A true example of the objects for which the Weeks law was originally drawn, the Pisgah National Forest protects the headwaters of important interstate navigable streams. Furthermore, in accordance with the broader interpretation given by the Clarke-McNary Act, it demonstrates timber growing under forest management, provides recreational facilities for thousands of people and serves as a refuge for wild life. This forest, which has been under Federal administration since January 1, 1915, scarcely covers more than half of the desired area. Starting out with less than 85,000 acres, the four units of the forest now total over 300,000 acres. It should be increased to 500,000 acres. This cannot be accomplished for less than a million dollars.

If this is true for one of the oldest of the eastern national forests, what can be said of the others? There are few in a better position. Scarcely one-third of the program endorsed by Congress has been accomplished. The general public looks to the Government for better administration of its areas, but the administrators are handicapped with the responsibility of lands honey-combed with private properties over which they have no jurisdiction.

If the eastern National Forests are adequately to protect the watersheds of our principal streams and rivers; if they are to demonstrate the growing of timber as a crop; if they are to meet the recreational needs of the people; if they are to serve truly as game refuges as well as hunting grounds, they must be large enough and sufficiently intact to be economically administered and broadly influential. The opportunities as well as the responsibilities demand more aggressive attention by the public at large and by Congress in particular. The forest acquisition program must be pulled out of the rut of unimportant Government activities and given at least \$5,000,000 annually for the next five years.



The D. A. R. Forest in Texas

Women of Lone Star State Dedicate Longleaf Pine Park

By ROBERT S. WAITE

SEVERAL years ago, while the State of Texas was debating the question of a State Park in its great eastern longleaf pine belt, the George Moffett Chapter of the Daughters of the American Revolution, at Beaumont, was quietly at work formulating plans for a forest-park area in which could be restored a small section of the once great forest that was found by the white men when they first crossed the Sabine River. Forty miles north of Beaumont, in the heart of the longleaf pine district, the chapter, under the direction of its Regent, Mrs. W. P. McFaddin, who is also chairman of conservation work of the D. A. R.'s in nine Western States, purchased one hundred and forty acres of cutover land. A fence was immediately built around the tract to keep out hogs and cattle and to discourage trespassing. An attractive gate, the posts of which were made of native stone, was then erected and the chapter officially opened its forest park, the first in Texas and one of the first in the country. The State of Maryland, according to official records, several years ago dedicated the first D. A. R. forest in the country.

Immediately following the purchase of the forest park the chapter erected a replica of the log cabin of the early Texas pioneer. The logs are chinked with clay and the chimney is of clay. The cabin serves as headquarters for the superintendent of the forests and as a forest museum and recreational center for the members of the chapter.

To protect the forest park from fire the D. A. R.'s sought help from the state forester, and under his supervision fire lines were put in throughout the area. These will be maintained by the chapter. The entrance to the forest park was located at a point where lumbermen and fires had left but a few scattered trees, a number of which were seed trees. This was done, according to Mrs. McFaddin, for the purpose of demonstrating to visitors and tourists passing along the highway from Beaumont to Dallas that nature will reforest unaided where a few seed trees remain and real protection is given the young trees from fire. If undis-

turbed, one longleaf tree will reforest five acres in this particular district of Texas, it was pointed out.

The forest park was a gift from Mrs. McFaddin and her husband to the Daughters of the American Revolution. It is her hope that in making this move other chapters in the states over which she has jurisdiction—Texas, Missouri, Kansas, North Dakota, South Dakota, New Mexico, Okla-

homa, Arkansas and Colorado—will follow the example set by the George Moffett Chapter. Always interested in forest conservation, the Regent believes that the best way to stimulate forest and tree appreciation is to actually establish and maintain a forest.

In presenting the forest, Mrs. McFaddin said: "We could not have chosen a more inspired place to dedicate our gifts and ourselves to nature's needs. We must therefore learn to love the close companionship of the pines and mother them affectionately. In our work—our duty of reforestation and fire protection—we must pave the way to interest others in our constructive purposes."

The first D. A. R. forest park dedicated in America, according to The American Forestry Association, was at historic old Fort Lincoln, in Maryland, in 1924.

In 1924 a memorial planting of 1,149 white pines was made, one for each member of the Maryland D. A. R., and during the same year the Children of the American Revolution of the State made a planting of white pines, designed to form an eight-acre grove. In the spring of 1925 tree planting was continued with the setting out of Scotch pine, European larch and locust.

In 1926 several acres were planted to tulip poplar, red pine and white ash, the poplar being presented to the D. A. R.'s by the Maryland State Society. In 1929 four acres of sugar maple and red oak were added to the demonstration forest. In 1930 a number of acres of black walnut were planted.

Beginning in Maryland, D. A. R. forests have been created in Texas, Massachusetts and Iowa, and the movement is being encouraged in many other sections of the country.



A replica of the log cabin of the early Texas pioneer has been erected by the Texas D. A. R.'s on their forest park near Beaumont.



The entrance to the forest park is located at a point where a few scattered seed trees are left to demonstrate to visitors and tourists that nature will reforest unaided if given protection from fire.



Fred H. Kiser

Short Lessons in Photography for the Outdoorsman

Conducted by Fred H. Kiser

A BLOSSOM TOUR

HERE in California the matter of distance is of no consequence when there is something of interest to see. A drive of a hundred miles before breakfast is not uncommon. So, having heard that the almond orchards were blooming at Banning, my wife and I decided to make an early morning trip. We knew, too, that orange, lemon and grapefruit trees would be blooming, so it was agreed that nothing but flowers and their camera registration would solicit our attention. There is so much beauty in the State at all seasons of the year that unless one makes an iron-clad agreement to do only certain things on a tour and stop at certain places one doesn't seem to get anywhere.

Though the city of Banning was our objective, we first stopped, shortly after daybreak, in the lovely city of Pasadena, in order to look upon the verdure surrounding the magnificent mansions and estates. It is an inspiration to see these beautiful places any time of the day, but on this particular morning the effects of color, light and shadow were glorious. The sun was up enough to throw dazzling highlights and deep, rich shadows through the pepper trees and tall, stately palms. The effect changed the entire aspects of streets, sidewalks and architectural lines so that at times we imagined ourselves in a



Fred H. Kiser

The combination of colors produced by orange blossoms and the varying greens of the leaves conspire to make one of the most difficult subjects to photograph. But we found a limb, with the right lighting, bearing both blossoms and fruit, and this picture resulted.

strange city. The lawn areas from certain angles presented a golden yellow, from others a dark, downy green, and with the intermediate tones, there was displayed a carpet of color equal to the richest fabricated rug. We were driving slowly, of course, drinking in the beauty on all sides. The front entrances of the houses, guarded by dignified old trunks and twisted, rambling branches of trees of many kinds, formed a series of first-place pictures for the memory album. The flower beds seemed to be in their glory for our special benefit. And with all these lavish color effects there was a profound stillness. The atmosphere seemed to be charged with magnetic beauty to hold us, and we positively had to force ourselves onward and away.

After reaching the main highway lined with palms, sycamores, eucalyptus, and pepper trees we continued east and passed through Altadena, Sierra Madre, Arcadia, Monrovia, Azusa, Glendora, and Covina. These are the beginning of a long chain of flourishing cities which skirt the base of the picturesque Sierra Madres Mountains.

Glendora, situated in the San Gabriel Valley, makes an instantaneous appeal to the visitor, for it is distinguished by its beautiful streets, lined with magnificent pepper trees.

As the light was right on two or three of the old pioneers, we were tempted to picture them, but called to mind that nothing but blossoms should take up our time on this particular trip.

A few more miles brought us to Covina, in the heart of one of the richest orange districts in California. Orange blossom perfume dominated the atmosphere. We inhaled this marvelous fragrance until our lungs hurt. Again we left the highway for the byways lined with citrus trees. We were feverish with excitement over the spectacle. We seemed to be living in a new land. Here, there, everywhere, as far as the eye could see, there were orange groves, the trees clothed in a mantle of snowy blossoms. The most skilled word painter would be hard put to task were he to attempt to do justice to an orange grove in bloom.

We had almost forgotten that we had duties to perform. We had to find our photographic specimens. That may sound easy, but quite the contrary. The combination of colors produced by orange blossoms—yellow to orange-red and cream to white and the leaves of the tree, very dark to light yellow greens—is one of the most difficult to photograph. In the orchards we devoted an hour to examination, and finally had to give it up. Something was wrong with the composition or light in all instances. We then drove four or five miles to an orchard containing some very old trees with low sweeping branches. What a joy it was to hunt for camera locations in a place like this! Finally my wife beckoned to me and I knew that she had found a limb of a tree which would work out to our satisfaction. Sure enough, she had found a heavy branch with the right kind



Fred H. Kiser

The road, lined with Italian cypress and almond trees in bloom, made an unusual picture—a study in contrasts.

of sweep, displaying splendid examples of both flower and fruit, and with highlights and shadows just right. In thirty minutes the photograph, sketch and color notations were made.

Not until we glanced at the dash-clock of the car did we realize what time it was. It seemed but a few fleeting moments since we first stopped in this fragrant land. Yet we had given three hours to this particular blossom picture.

After a few more turns on flowery lanes we continued east toward Banning in quest of a different flower. A leisurely drive brought us into the city located in the famous San Geronio Pass, at an elevation of 2,315 feet. The transcontinental highway at this point crosses a mountain divide which marks the gateway between valleys of the Colorado River Desert and the broad, fertile plain that extends to the coast. The city itself is beautifully situated between the two highest peaks in Southern California—San Geronio on the north and San Jacinto on the south. To the east are the charming desert areas so widely advertised as winter resorts. Palm Springs, Painted Canyon, Thousand Palm Canyon, Devils Garden, Morongo Valley and the Joshua Tree Forests are within easy driving range of the city. According to meteorological statistics the region averages 345 days of sunshine each year, and a precipitation of but nineteen inches. This deficiency in sky moisture, however, is taken care of by a wonderful water supply from an underground storage basin in the San Bernardino Mountains.



Fred H. Kiser

This exposure, in the land of the purple sage, was made with favorable lighting conditions for a most artistic effect.

Almond and cherry orchards are particularly attractive here when in bloom. I have seen hundreds of orchards in bloom in the Northwest, and I think the Banning orchards, while of a different variety, are equally as magnificent.

In driving about the country we finally selected an old orchard, unkempt but displaying a profusion of bloom, with a snow-capped mountain range as a background. Running up one of the rows of trees were some well-defined wagon tracks which I used as a center of interest. There were just enough weeds, grass, and rock in the foreground of the setting to render tone gradation for color values, all of which added to the general perspective. While the finished picture of this particular exposure would not be classified as a well-cultivated orchard, it is one which is greatly admired. After finishing our work here we drove to the hillside and turned off the main thoroughfare. Here we experienced another great surprise. The road was lined with Italian cypress and almond trees in bloom. These two species, growing as they were, presented a striking effect. The cypress trees were fully twenty feet tall, and the almond branches, with their showy blossoms jutting out their loveliness across the green base of every cypress, gave us a wonderful oppor-

tunity to test our photographic skill. The shadows of the trees on the road, however, were almost at direct angle with our viewpoint, so we had to wait an hour for the sun to point in the right direction.

While waiting, a curious old man came up and wanted to know what we were doing. I told him and he was immediately interested, finally suggesting that we go out on the desert and photograph the purple sage, which was in flower. I made a few notations as to directions and thanked him. Before long we were speeding along on the broad cement highway in order that we might reach the Land of the Purple Sage and make an exposure before the light failed. We found lighting conditions favorable and made the exposure. As we packed up for our return home we concluded this to be the end of one of the most perfect days we had ever spent outdoors. We had thoroughly enjoyed blossom-time and given it perpetuity in picture form, that others less

fortunate than ourselves might be encouraged to plan a "blossom-tour" some time in the future. Things that grow and display their beauty at seasonable times should receive unreserved recognition and appreciation. God-given beauty in outdoor life is inspirational and extremely educational.



THE POET'S BROOD

Be still, my little unfledged thoughts:
Bide in the nest a wee.
(O, Mother of all things that live,
Keep down the pride in me!)
Unfeathered ones, lean on my heart,
Stay till your wings have grown.
(And help me, when they leave me,
Lord,
To count them not my own!)

—P. P. Strachan.

WILD LIFE IN A FIRE

(Continued from page 324)

during the time of the fire, or dying as a result of injuries suffered. The indirect results are frequently more disastrous than the direct.

Fires cause dangerous concentrations of game. In an area approximately three miles square on the eastern edge of Wood County, adjacent to the burned area, ninety-three deer were counted in a single afternoon early in the winter following the fire. This concentration was not the "yarding-up" as deer do not congregate in "yards" in mild winters. Sharp-tailed grouse, prairie chickens, and ruffed grouse have concentrated by the thousands along the ditch banks and in the few unburned "islands." Rabbits and other small animals have likewise concentrated.

The very presence of large numbers of game animals or birds attracts predators. The predator situation becomes particularly serious after a fire because the mice and other normal food of foxes, coyotes, hawks and owls are practically exterminated in burned districts. This makes the predators turn more than ever to game animals and birds.

Another disastrous indirect effect of forest fires is the destruction of food and cover. The beaver situation in this area is typical. Few beaver were actually killed in the fire because of their ability to escape by their water routes, but their food has been entirely consumed.

The Conservation Commission has established many feeding stations for birds in the burned area. Prairie chickens, sharp-tailed grouse, and other ground feeding birds have fed every day from the special automatic feed hoppers with which every station was equipped.

Fires have a serious effect on game reproduction. Many birds and animals, while not actually killed, are rendered impotent or inefficient because of weakened condition.

Large concentrations of game, caused by fire, likewise have a harmful effect on reproduction because the individuals do not pair.

This one fire which burned in such excellent game country in central Wisconsin in 1930 may have been more destructive to animal, bird and fish life than normal forest fires, but the results which have been related here tell the story of what happens in greater or lesser degree in every forest, marsh, or field fire.

The effect of fire varies according to the season in which it burns. Early spring fires are particularly disastrous to the mating activities of game birds. Fires later in the spring destroy nesting birds or young birds and animals. Fall fires play havoc with the food and cover necessary for the game to survive the approaching winter. Fires always do more damage to game than to game's predators, as these animals and birds are better able to take care of themselves than are the game animals and birds.

Statistics on fire causes show that a comparatively small percentage result from logging activities, indicating that men whose livelihood depends on the woods are more careful of them. Similarly there are usually fewer fires on Indian reservations than surrounding them. America's oldest outdoorsman is careful. Carelessness with fire in the woods marks the tenderfoot.

The whole effect of forest fires is probably more destructive to game than the sum total of all hunting and fishing law violations. Sportsmen can do nothing which will do more to perpetuate their sport than to prevent forest fires. America's out-of-doors is a heritage to keep, protect and enjoy.

A FOREST PAGE FOR BOYS AND GIRLS

Conducted by
WAKELIN MCNEEL

SCHOOLS within walls will soon be closed. Schools under the blue sky with nature as teacher are about to open. The opportunity that thousands of boys and girls have longed for is just around the corner—to explore a great new field, unlimited in fun possibilities, with new adventures challenging energy and interests. Even the common performances of sleeping and eating become deeply satisfying. If the adventure is no more than a home-made lean-to or tepee in the woodlot it has some of the fun possibilities of the camp in remote places amid wild surroundings. The smoke of the campfire is almost as fragrant, and the food cooked over it fully as appetizing.

Birds come and go. Spread out in front of his home-made tepee, Bill, one of my club boys, noticed a humming bird fly by at frequent intervals. His curiosity was aroused and he followed the bird's movements, finally discovering the nest. Shoffner, the Liberty Bell Bird Club man, has written a delightfully informative book on birds after almost a lifetime spent in studying them. In it he states that he never found a humming bird's nest. But Bill did, and it was a victory as great as kicking a goal for his school, though he did not get the school yell for doing it.

A boy will find a camp near home a source of new adventures, and if he keeps his eyes open and mind alert, a source of much information. It is great fun. Bill's diary reveals the thrills he experienced:

"Woke up with a bang this morning to find the sun high and the birds active

and singing. Slept wonderfully the entire night. Could not have done this a few nights ago when every sound disturbed me. Know now what our leader meant when he said camping was a real way to educate courage. Last night just as I was thinking about going to bed, a whippoorwill flew to a branch within the circle of my campfire. He stayed there for half an hour, singing much of the time. He was so close that I could hear the cluck that comes before his song. My bird book says that while most people know the song of the whippoorwill, few ever get close enough to hear the complete song."

Bill has been schooled in the nobility of hardiness and toughness. Since his woodlot camping he has climbed mountains and shot dangerous rapids. He has become brave. A little praise does not affect him. He discovered in himself a good companion and so he is a good lone camper. But he enjoys the large, purposeful, well disciplined camp as well. Around the camp fire he can spin, after sufficient urging, many a good story of personal adventure.

While seated around a campfire recently, a camp director told the story of one of the most romantic of all Indians—Chief Plenty Coups, head of the Crow Nation. He came by his name by winning so many tokens or *coups* in recognition of achievement and feats

of daring. Judging from the Indian standards these feats were all admirable. During his last days he told the story of his life to a talented and sympathetic interpreter and boys and girls can now be thrilled by the romantic.

ANY CAMP THAT IS WORTHWHILE MUST SOMEHOW
FIX THE IDEA THAT WORKING TOGETHER IS THE
BEST AND MOST JOYOUS WAY OF LIVING



A bunch of campers on a hike inspecting plantings made some time ago. Some of the lads are wearing their "coups."



The camp-fire is the living, joy-giving, palpitating heart of the camp.

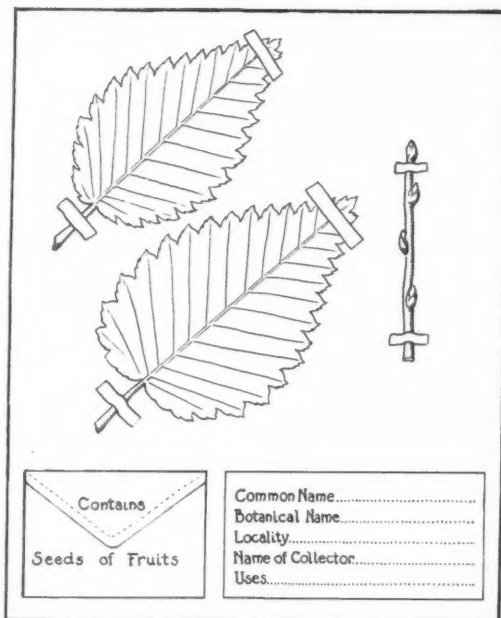
cism of bygone days in a book called *Plenty Coups*. It is great!

From this book the camp director caught an inspiration. A boy always goes to camp to have fun. The wish for fun is one of the strongest in the human make-up. Another wish quite strong in every normal boy is for recognition. Fun and recognition were provided in the director's camp. The outstanding feature was the system of awards—feathers, which were called *coups*. They were given for worthy accomplishments. When ten *coups* were won a camp *coup* was awarded.

Classes in the morning and hikes in the afternoon aided in the earning of *coups*. During his free time the camper would apply the instruction. The awards were made around the campfire, and if any camper challenged the award, the candidate was required to show his worthiness. It was a self-earned advancement. There was a noticeable lack of competition; rather there was a desire on the part of each camper to beat his own record and to carry home a camp *coup*. Every one was busy making baskets, whipping rope, mending ax handles, identifying birds and trees, while it was not uncommon to see a lad alone under a tree memorizing a poem.

Some of the achievements were hard and demanded painstaking endeavor. Some the boys could meet without much preparation.

AN AWARD IS MORE THAN A RECOGNITION—IT IS AN OBLIGATION



This shows a page from a well-made herbarium.

LUCK IS PLUCK WITH THE LETTER "P" WORKED OFF

award—seeing three deer—depended a little on luck; but when I learned of the long hikes taken into remote deer country in order to win this *coup*. I came to the conclusion that their luck was pluck with the letter "p" worked off.

Here is a partial list of the achievements that brought recognition. Could you win a Camp *Coup* from this list?

Identify fifteen trees, including the lumber-yielding species, and give utility value of each.

Make an herbarium of twelve trees.

Identify forty birds and describe eating habits of each.

See three deer and convince camp director no two were the same deer.

Tie readily ten knots useful to lumberjack or farmer.

Whip the end of a rope, and mend an ax handle.

Make a reed basket.

Make a bird house with materials found in the woods.

Make a fire by friction outfit.

Make an article of beadwork.

Make a rope-making machine and demonstrate its use.

Make a plaster cast of a track of a wild animal or of a bird.

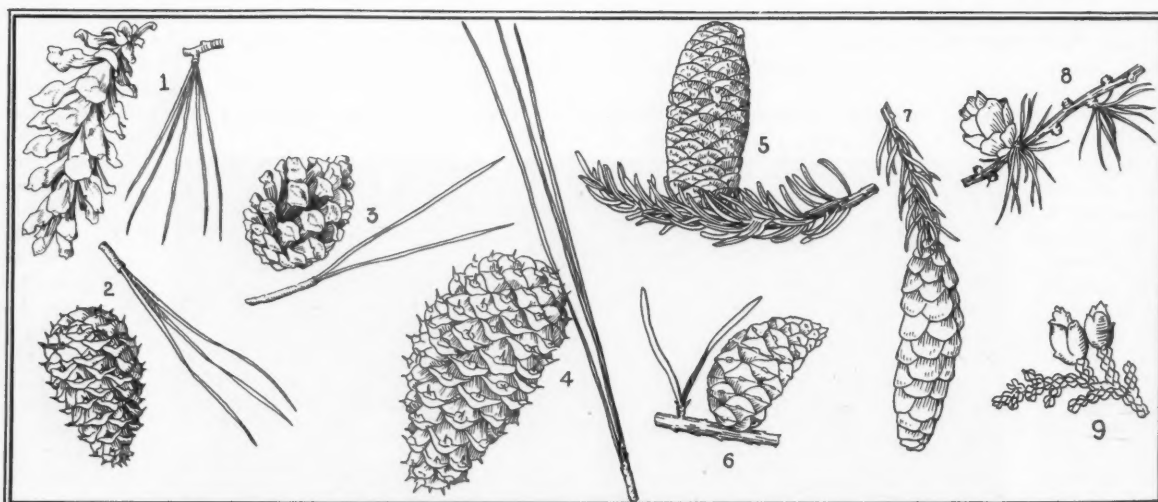
Sharpen an ax and a jack-knife.

Demonstrate emergency bandaging.

Make a map of the camp grounds by plane table and determine its area on cross-section paper.

Swim one-quarter of a mile.

Make an instrument for measuring the height of a tree



Once more get out your "How-to-Know" book and identify these conifers. Send in your answer at once addressed to the Editor of "A Forest Page" in care of this magazine. The first five sending in correct lists will receive a copy each of Paul Bunyan's stories.

and demonstrate its use. Determine the height of three trees by the shadow method.

Estimate number of board feet in ten merchantable trees and compare your estimate with that found in volume tables.

Mount five butterflies and moths.

Demonstrate how to build fires for different purposes, and how to leave a campfire.

Identify ten edible wild fruits.

Learn Joyce Kilmer's poem *Trees*.

Tell at campfire meeting a Paul Bunyan story or an Indian legend.

The facilities at most camps render it somewhat difficult to make a good herbarium. Yet by careful endeavor splendid ones have been prepared. The camp must provide heavy paper, transparent mending tissue for attaching specimens to the paper, newspapers or mail-order house catalogs for drying the specimens, and cardboard for covers. Pieces of seasoned birch-bark gathered from fallen trees, dried flat and varnished on the inside make attractive covers.

Collect typical specimens of leaves. Those taken from seedlings or sprout growth are not typical. The specimens are dried immediately after collecting by placing between absorbent paper, as newspaper, and then placing under pressure on a flat surface. If the cooking shanty is large enough, and the cook not too exacting, there is the place to do the drying. When this has been accomplished place the specimen on mounting paper so that there is a place in the lower right corner for a brief description. Attach the specimen to the mounting paper by narrow strips of mending tissue at stem and tip, as shown in the illustration. Two specimens of the same species will enable the collector to show both sides of the leaf. In case of compound leaves such as walnut and ash show the whole leaf, not just the leaflet. In case of pine show a bundle of needles. If varnish is provided, two coats applied to the cardboard will make it durable. If you wish to make it attractive paste on a suitable picture before varnishing. Then present it to your counselor, get his autograph—and a *coup*.

Forestry scrap books have been sent to Grace Haynie, of South Carolina; Floyd Reid, of Michigan; and Burt Dahlberg, of Wisconsin, because of the excellence of their letters in describing their favorite tree. Parts of these letters were quoted in the May issue, you may remember. A letter from George D. Klein, of Wyoming, came too late to use, but it was

so fine in sentiment and form of expression that recognition of some kind should be made. So we are sending him a cruiser's stick. George's favorite tree is the Rocky Mountain white pine. Its botanical name is *Pinus flexilis*. He likes it because it will grow at the timberline, on the wind slopes where other trees cannot survive the severe climate. Around the timberline it grows into grotesque shapes, but in the lowlands it is a tall and beautiful tree. George has shown good judgment in selecting so versatile a tree. There is a specimen on the campus at the University of Wisconsin, and I went out and renewed its acquaintance after getting George's letter. Needles are still retained on the stem five whorls back, which shows that its needles are deciduous every five or six years.

In the April issue of AMERICAN FORESTS there appeared a maple leaf and fruit identification contest with a cruiser's stick offered to each of the first five sending in correct lists. Many correct lists were received, and I am sorry all could not be given the award. So many were correct that I thought it best to tighten up a bit in the next contest. I have done so in the trees presented for the identification contest of this month. Get out your *How-to-Know Book*, identify the trees given in the illustration and be sure the number and tree correspond in your list. Each of the first five sending in correct lists will be awarded a copy of Paul Bunyan's stories. Address your letter to AMERICAN FORESTS, care Forest Page for Boys and Girls.

Those winning the maple identification contest are: Howard Archer, of Kansas; Hubert Fleischer, of Wisconsin; Neda B. Toten, of Connecticut; Cephas Hawkins, of West Virginia; and Daniel Tellotson, of Massachusetts.

Another thing before I wish you a splendid time at camp. A number of boys scattered here and there are making collections of cones and want to get a cone of every coniferous tree growing in the country. One fellow writes that he would like to travel from one section to another and gather his own specimens. Since he can't do this, he says he would like to exchange cones with boys in other parts of our country. Then and there we decided to get the names of all boys who are interested in making a collection of cones for their forestry museums; boys who would be willing to exchange cones of their native conifers with boys elsewhere. Send me your name, if you are interested. Soon the exchange will be under way, and cones that look like pumpkins, cones that look like bananas, and cones that look like armadillos will be adorning the museums of our readers.

DO YOU KNOW

That it takes sixteen acres of spruce trees to make the paper for only one edition of a metropolitan newspaper?

That two hundred and fifty million trees of average size are cut from our forests every year, or enough to cover an area equal to Massachusetts, Connecticut and New Jersey?

That there are around 253,000 miles of railroads in our country, exclusive of side tracks, and that each mile takes three thousand ties; each tie lasts around twelve years, and the demand calls for one hundred million ties every year?

That careful estimates place the consumption of pencils at one billion a year—a small sized forest needed for this one article alone?

That forest fires are costing our nation easily three hundred thousand dollars a day?

That one of the most destructive practices in the world is uncontrolled burning of pastures and marshes.

That it is not the mighty shovels of the great but the aggregate shovels of the many that count most in forest improvement as in anything else?

BOY SCOUTS TO PLANT MT. VERNON TREE

At the annual meeting of the American Forestry Association at Asheville, North Carolina, June 3, 4 and 5, the Boy Scouts of America will plant a walnut tree from the historic grounds of Mount Vernon in honor of the bicentennial of George Washington. Chief Scout Executive James West will speak at this ceremony. This planting is part of the National Nut Tree Planting Project of The American Forestry Association, the Boy Scouts of America, The United States Department of Agriculture and the American Walnut Manufacturers' Association.

GOLDEN FINS OF THE SEQUOIAS

(Continued from page 345)

streaked peaks rose to the sky. In the afternoon rising black storm clouds added to the desolation.

We found a tiny, closely-matted grove of old tamarack or foxtail trees, with a mass of huge boulders to break the wind, just behind them. There was a smooth expanse of bright hair-grass extending down to the gravel lakeshore. From the cheery supper fire floated the spicy odor of burning pine, of frying bacon, and bubbling coffee. We noted the widening circles made by rising trout on the placid surface of the lakelet, and suddenly realized that here, too, was an intimate, friendly country.

It is nine years since I first found the transplanted goldens in these little, unnamed lakes, and took them up to a weight of nearly two pounds. They should be larger now, perhaps triple that size, and a wonderful experience must surely be in store for the careful angler who will send his flies across those blue waters.

At Junction Meadow we chose the Dean Trail for our route, and ascended the east canyon wall, joining the main north-and-south high trail where it crossed Wright Creek. At this point we were but six miles from Crabtree Meadow, where one camps for the ascent of Mt. Whitney. This route south to a starting point at Cottonwood Creek, the Kern, or the meadow region, would complete a splendid circle trip of about sixty miles, requiring only five days of easy travel. The contour maps indicate a large group of lakes in the upper basin of this creek, but we resisted the temptation to explore in favor of a projected side trip to the south. There was no trail, but we cast about for a possible route up a wide basin beside a swift creek, spied an old monument, a few dim trail marks and reached the lakes after four miles of slow work.

At 11,400 feet we pitched the little umbrella tent among the last of the straggling tamaracks, and gazed across a wild,

granite-walled basin which cannot be excelled for sheer grandeur. Dozens of major peaks, their flanks white with snow, grouped about us. Three miles distant loomed the massive helmet of Whitney; a mile nearer stood the Gothic spire of Mt. Russell, 14,190 feet.

The threatening clouds drew closer as camp was made snug, and a steady rain came down, sizzling in the ashes of our dinner fire. From our shelter we gazed across the storm-shrouded peaks and it was difficult to realize that we were—by air line—only a dozen miles from a town, highway, automobiles and people. We were two days by trail from this civilization, and it required a stretch of imagination to even reconcile that connection with our surroundings.

After the shower we cast our flies to the hungry goldens in the smaller of the lakes, and realized the superlative fishing which my companion had traveled nearly across the country to reach. He caught a pound fish, another weighing a pound-and-a-half, a fighting, leaping flame of a trout, which taxed all his skill.

It is difficult to convey how quickly and thoroughly one feels akin to his wild environment after a few days up there. One delights in performing well the simple duties of camp life. This is good, for we have accomplished the major purpose of a vacation in forgetting the affairs of our daily lives at home.

One day we made a long, gradual ascent into Shepard Pass where, at 12,100 feet, lay a huge snowbank thirty feet in depth. Six hours later, and 8,000 feet lower, we rode across the sagebrush mesa in a temperature of 100 degrees or more. We had left the Sierras behind us. For sixty-five miles we had ridden over the park trails, and yet had covered only a small portion of the superb Sequoia back country.

MEXICO'S PINE FORESTS

(Continued from page 349)

where a drier condition is apt to be found. On at least one-fourth of the entire area, the soil is sufficiently deep and suitably situated for growing crops. In fact, the region does not differ greatly from that of northern New Mexico and southern Colorado.

All of the timber is not accessible to profitable operation. However, sufficient is available to render this consideration negligible. While partial in its distribution as to stand character and quality, developing best on the northern slopes, the entire region contains pine of utility size. It is less desirable when found on the southern slopes, being at times short bodied and scrubby. Over the greater part of the commercial areas the trees average four sixteen-foot logs, with a rate of ten logs to the thousand board feet. As a whole the forest is in a thrifty condition and capable of cutting the better grades of finishing lumber, clears and the shop items.

California has no better climate. Over the entire region it is temperate, with a rainfall to support good vegetable growth, as evidenced by the luxuriant acres of forest and range. There are no extremes in temperature and the weather is seasonable. The heat and drought characteristically associated with the lowlands is counteracted by the high elevations. With increased railroad facilities and suitable hotel accommodations the area would easily rival our best mountain summer resorts. The winters are mild and snow rarely falls in great amounts. Game fish, deer, wild turkey and bear abound and some of the finest remaining hunting grounds on the North American continent are to be had in the pine belt.

In addition to the great possibilities for lumber industries, the region offers an exceptionally wide field for cattle-grazing and agricultural development. In short, the region is a virgin pine timbered country with extremely valuable natural resources. Curiously enough, this elevated portion of Mexico, which could be made to support a prosperous population, is still covered with forest, while the less favorable, less sanitary, and more arid regions of the interior are relatively densely populated.

Mexico imports from the United States annually approximately 115,000,000 feet of softwoods and 12,000,000 feet of hardwoods. Mexico's principal pine competitors in the United States—California, Oregon, Colorado, Arizona, New Mexico, Idaho, Montana and Washington—produce annually about 3,000,000,000 feet of the ponderosa pine of trade. On the basis that this approaches the consumption maximum for this kind of wood and deducting Mexico's domestic requirements of 150,000,000 feet a year, there is a thirty-year supply available to American industries and usable at the rate of 3,000,000,000 feet a year before exhaustion. This does not include Mexico's pine timber that might be tucked away in the less desirable locations. This included, the supply might serve for a fifty-year period and then double to a hundred when it is considered that the western pine of the United States will of course continue to be operated.

In Durango and Chihuahua two good sized mills are operating at the present time; one at El Salto and the other at Madera. The combined capacity of these mills is in the neighborhood of 40,000,000 feet a year with practically all of their output consumed in Mexico.



Rewarded

Lawyer (reading very rich lady's will): "And to my nephew Percy, for his kindness in calling every week to feed my darling goldfish, I leave my darling goldfish."—*The Humorist*.

Just a Noshin'!

Three frogs wuz sittin' on a lily pad. Two of 'em tooka noshin' to jump off. How many were left? Answer—three! Because they only took a noshin'.—*Black & Blue Jay*.

Sic 'Em, Cecil!

"It's time to get dog licenses again. You keep a dog, don't you?"

"No. If we hear a noise in the night, we bark ourselves."—*Royal Arcanum Bulletin*.

The Real Stuff

Comic Artist: "This joke ought to be good. I've had it in my head for 10 years."

Heartless Editor: "Sort of aged in the wood, as it were."—*Hummel, Hamburg*.

Rocky

Gigantic Petrified Elephant Discovered.—Headline. They must have found him in Chicago after the Democratic landslide.—*B'nai B'rith Messenger*.

Psychology with a Lure

A psychology class in Chicago has succeeded after exhaustive researches in teaching a herd of mice to turn to the right. It is believed the secret is to place a pound of store-cheese to the right.—*Detroit News*.

But Don't Burn

"If you seem to be losing the uphill fight against nature," twinkled the Professor of Entomology, by way of counsel to his future farmers, "take a tip from the Chinese—see no weevil, hear no weevil, think no weevil!"—*College Humor*.

Not Exclusive Enough

City Urchin (in the country for the first time): "This is just like grass, ain't it?"

Little Friend: "Why, it is grass, Chimmie."

Urchin: "No, it ain't, cos yer don't have to keep off it."—*Hardware Age*.

An Easy Way

They're now making rubber of sagebrush. We'd think this lowly plant would turn to rubber without extraneous aid, if noting the prevailing garb of feminine tourists.—*Weston Leader*.

They Both Help

"Fish is good for the brain," says a doctor. And fishing stimulates the imagination.—*Passing Show*.

His Slogan

"That florist surely keeps in touch with his slogan 'Say it with flowers.'"

"What's his method?"

"Well, I know he has sent me a bunch of forget-me-nots with each bill."—*Guide to Nature*.

He Remembered

"Pa."

"Yes, my son."

"What kind of wood do they use most in tanning?"

"Well, when I went to school, my boy, they used birch."—*Birmingham News*.

But Not Pickled

What the country needs is more wild life in the open spaces and less in the cities.—*Dayton Journal*.

Silly Season Marathon

On a Maryland farm, a turkey gobbler is sitting on twenty-one eggs—the big sissie.—*Detroit News*.

The Sap

The sap is an indication of vigor in all trees except family trees.—*Louisville Times*.

Who?

"Where are the biggest and worst mosquitoes found?" asks *The Literary Digest*. But who in—well, who besides *The Digest* wants to know?—*Weston Leader*.

He Got It

Kelly and Cohen were having dinner together. Cohen helped himself to the larger fish and Kelly said:

"Fine manners, ye have, Cohen. If I had reached out first I'd have taken the smaller fish."

"Vell," Cohen replied, "you got it, didn't you?"—*Tit-Bits*.

Hot Tips to Tourists

By ARTHUR "BUGS" BAER

Reprinted from *The Washington Herald*

NO MATTER how many forest fires are raging in this country, the waiter always brings in your asparagus cold.

On the first nice Sunday in April they reported 48 timber fires in New Jersey alone. All of them were started by tin-can tourists who think it is nice to cook a meal in the woods.

They wind up by cooking the meal, the woods, the houses and themselves.

The Government has forest rangers spotted on towers to watch for suspicious smoke among the trees. But what can they do against thousands of tourists who want to cook every egg in every bird nest for miles around?

We imagine that when a camper has an enjoyable day in the mountains he says to himself, "This is a nice spot. I'll just leave my campfire burning so I will have a landmark to guide me next Sunday."

Then he wheels home and wakes up at midnight to find his bungalow ablaze, from consomme to demi-tasse. His campfire has chased him home: Dropping matches, cigars, cigarettes, hot stoves and short-fused bombs are other splendid ways of incinerating the landscape and scorching the horizon.

They usually blame it on the glow worms and the lightning bugs. The farmers suffer from our week-end excursionists and their torchlight parades through the Poconos, the Appalachians and the Adirondacks.

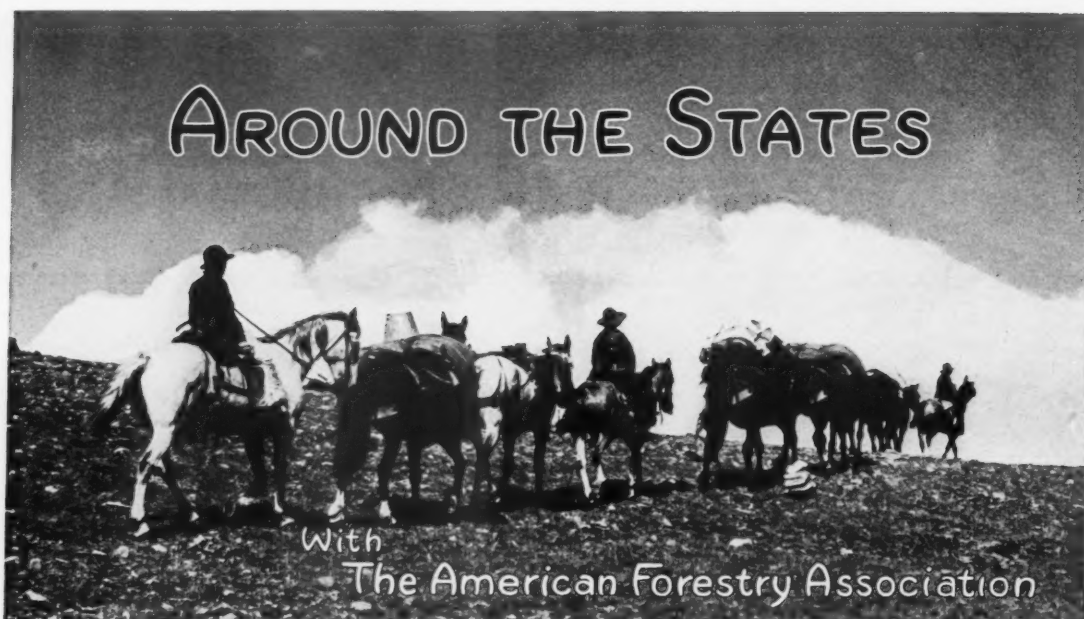
We don't say the Sunday tourist is an actual pyromaniac.

But he's a darned good substitute until the real pyromaniac comes along.

When you drop a lighted cigarette in the woods stamp on it. Don't fan it with your hat. If you had a campfire in the early evening pour water on it. Don't kick it around.

Why eat at all in the sticks? Or if you must cook the hot biscuits and sizzling gravy why not camp out in the petrified forest?

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32,000,000 People Visit National Forests

Recreational use of the National Forests continued its steady growth, with 31,904,515 visitors last year, according to complete reports announced by the United States Forest Service. Although this was an increase of 146,284, as compared with the preceding year, the gain was small in comparison with that of 1929, when the estimated number of visitors increased about 8,000,000, as compared with 1928.

Many of the 151 National Forests participated in last year's gain. Campers and picnickers showed increases in number but guests of hotels and resorts located in National Forests showed a slight decrease. Campers last year numbered 1,980,736, as against 1,902,961 for 1929. Most of the gain was in the National Forests of the West. Estimates for picnickers showed 3,272,682 for 1930, against 3,056,456 for 1929, with increases both in the East and in the West.

With forest highway and road extension making more areas accessible, the great majority of recreationists last year entered the National Forests by automobile. The total number of visitors traveling by motor increased from 28,786,516 in 1929 to 29,541,607 last year. Hikers entering the forests also increased—from 202,272 to 220,853.

The Forest Service last year added several hundred miles to its system of roads and trails, and also improved many camps and picnic grounds for free public use. In these camps drinking water systems have been developed, sanitary facilities provided, and fire risks minimized. Improvement of public camps is continuing and there are now more than 1,500 recognized public camping grounds in the National Forests. The Forest Service also has allotted suitable sites under special use permits for Boy Scout, club, summer school, and municipal camps.

Camping in Michigan National Forests gained sixty per cent last year. There were gains for campers also in North Carolina, Pennsylvania, West Virginia, Oregon, California, and Arizona. Arizona was the banner State for gains in all types of National Forest

recreation, with a million and a quarter more visitors than in 1929, a gain of about eighty per cent.

California still leads with the largest number of National Forest recreationists, more than 16,000,000 entering the forests last year. The White Mountain National Forest in New Hampshire led all the rest of the East, with 1,928,000 visitors.

United States to Have Forestry Representative Abroad

Arthur C. Ringland will leave early in June for Europe to take up his work as the United States' forestry representative abroad. As



Arthur C. Ringland

Forester with the newly organized Foreign Agricultural Service under the administrative direction of the Bureau of Agricultural Eco-

nomics, Mr. Ringland will make his headquarters at Geneva. He will work under the technical direction of the Forest Service. His activities will bring him into contact with forestry in all the more important countries of Europe.

The appointment of Mr. Ringland to a foreign post as forester representing the interests of the United States is a new and significant development in American forestry. The purpose of the appointment is to enable the Department of Agriculture to keep in touch with the status and trends of forestry development in Europe as an aid to the formulation of national forest policies in the United States, the development of forest research, and the improvement of technical forestry practices. Emphasis will be placed primarily upon the broad problem of profitable forest land use and upon the scientific and professional side of timber growing. Both public and private forestry in European countries is very much older than in the United States. The historical experience of these countries in the abuse and use of forest land will be of direct aid in the development of forestry in the United States and of great value in planning wise utilization of forest and other lands, particularly submarginal agricultural lands. The data obtained will be of interest to the federal and state administration, the forest industries, the universities, and organizations interested in the conservation of natural plant and animal life.

Mr. Ringland will collect data in European countries on submarginal land utilization with particular reference to the relationship between forestry and agriculture; the trends and interrelationships of different classes of forest land ownership; the form and effectiveness of public regulation of private forests; the status and effects of forest legislation and policies; technique and findings of forest research; developments in forest administration and forestry cooperatives, and the status and developments in forest education.

Mr. Ringland is one of the most widely experienced foresters in the United States. He was graduated from the Yale Forest School in 1905 and took a prominent part in the organization and development of the National Forests

during their formative years under the Department of Agriculture. In 1908 he was selected as District Forester in Arizona and New Mexico and served in that capacity until the outbreak of the war when as a captain in the 10th Engineers (Forestry) he went overseas with the Forestry forces of the United States. He succeeded in being transferred from the non-combative to the combative service and served at the Ypres and San Mihiel points with the 37th Division of the 112th Engineers.

Following the war, Mr. Ringland was a member of the Hoover Relief Commission, serving as Chief of Missions in Czechoslovakia and Turkey. Upon his return to the United States in 1924, he was appointed as secretary of President Coolidge's National Conference on Outdoor Recreation.

Prize Forestry Demonstration Contest in Connecticut

A prize forestry demonstration contest is now open to Connecticut boys and girls between the ages of ten and eighteen years, according to the Connecticut Forest and Park Association. Prizes will be given for the best demonstration of forestry practice on a minimum area of one-half acre. The contestant must submit a written report giving a general description of the area, condition of the plot before and after work, and aim of forestry work. The project must be entirely under the supervision of the contestant but friends may assist provided they are not paid nor more than eighteen years old.

The plot should demonstrate either the thinning of sapling stands, weeding of plantations, or forest planting. In all cases an accurate account of time spent on the project must be included in the written report. The first prize, which is offered by The American Forestry Association, is a bronze medal carrying a reproduction of the oldest and largest of all living plants, the General Sherman tree. Three second prizes of \$5 will be given by the Connecticut Forest and Park Association. The contest closes on November 1, 1931, and prizes will be awarded soon after the first of the year.

Oregon Reforestation Law Proves Successful

The Oregon reforestation law which has been in operation two years since it became effective June 4, 1929, has made Clatsop County richer by \$7,247, according to a recent statement by State Forester Lynn F. Cronemiller. He explains this on the ground that delinquent taxes in that amount have been paid by owners who would have abandoned their lands under the old *ad valorem* system of taxation. To date 247,226 acres have been classified or recommended for classification in seven counties.

The Oregon reforestation law is designed to promote forest growth, and to encourage owners to retain ownership of their forest growing land for future forest crops. Upon recommendation of State Board of Forestry the lands may be listed with the State Tax Commission, and if accepted the taxes on the property may be paid in the form of a 12.5 per cent yield tax when the forest crops are harvested. There is also an annual payment or fee of five cents per acre.

Forester Honored

A 13,400-foot mountain peak in the Holy Cross National Forest, Colorado, has been named Hunter Peak by the United States Geographic Board, in memory of the late Gerald M. Hunter, who served for several years as deputy forest supervisor on the Holy Cross Forest.

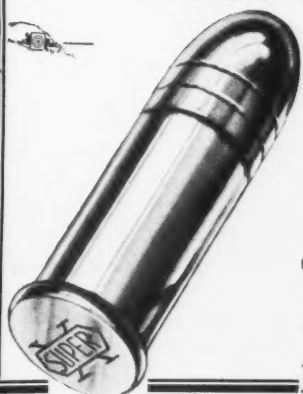
Western now gives you a LONG RANGE .22 Cartridge

50% more power, coupled with 26% more speed, gives the Super-X .22 much longer range than was believed possible of small-bore ammunition. It shoots with greater accuracy than you had ever hoped for. At 50 to 100 yards you can get small game with certainty. Your bullet doesn't merely hit its mark. It crashes into it!

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Hoover Orders Curtailment of National Forest Timber Sales

President Hoover on May 14 called upon Secretary Hyde of the Department of Agriculture to curtail the sale of timber from the National Forests. "In view of the manifest overproduction of wood products," said the President, "it seems to me it would be of assistance both to the commercial situation and to the real conservation of our forests if the Department of Agriculture would still further temporarily restrict the leasing of the National Forests for wood production."

The President said he believed it would be desirable now to limit all timber sales by the Forest Service to sales of not over \$500.00, excepting for pulp purposes in Alaska, and where further sales must be made in order to keep existing sawmills in operation.

"The only reason I am moved to make these exceptions," said the President, "is that we should not deprive farmers and small industries of wood supplies and should not create local unemployment by inconsiderate action."

The effect of the President's order will be to stop temporarily the Forest Service from opening up new tracts or sources of timber on the National Forests. It is not anticipated that it will affect existing plants dependent upon Government timber. As worded, the order applies to insect infested, fire killed and wind thrown timber, but it is understood the Forest Service is endeavoring to have an exception apply to this class of timber where its removal as soon as possible, is necessary in order to save it from complete deterioration.

Meeting of Tennessee Forestry Association

Forestry activities of Tennessee were given stimulation May 7 when the Tennessee Forestry Association met at Nashville for its annual meeting. Featuring the meeting were papers dealing with forestry as a part of a natural resource conservation state program; forestry as related to public welfare, to the lumber industries, to agriculture, to wild life and to soil

erosion. The chief speakers were Henry E. Colton, president of the association; W. J. Fitts, commissioner of agriculture of Tennessee; H. N. Wheeler and A. B. Hastings, United States Forest Service, and W. C. McCormick, in charge of the Southern Forestry Educational Project of The American Forestry Association.

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George Washington Scion Planted

The planting at Yorktown of a sapling from the famous giant elm under which George Washington took command of the Revolutionary Army has just been announced by the Department of the Interior. The location chosen is near the site of the surrender of Lord Cornwallis to General Washington following the final battle of the Revolution.

This "grandchild" of the Washington elm, eleven feet tall, was presented by Mrs. James H. Dorsey, Maryland State Chairman of Conservation, Daughters of the American Revolution. A bronze marker for the tree has been presented by the Maryland D. A. R. In addition to being a tribute to General Washington, the tree and tablet also are commemorative of the services of the Maryland patriot, Colonel Tench Tilghman, who was aide to Washington at the time of the Yorktown surrender, the department states.

Mrs. Dorsey, donor of the young tree, is giving eight more Washington elm saplings still growing in her yard to other official and historical bodies for planting at various places as a contribution to the George Washington Bicentennial.

Tennessee Fire Law

To leave an open fire burning unattended within 150 feet of a forest or woodland, or within the same distance of any inflammable material is unlawful according to an act passed by the Legislature of the State of Tennessee and signed by Governor Henry H. Horton. Under the new law the convicted offender may be fined from \$5 to \$50, together with all damages and costs of extinguishing the fire.

Tour of Historic Virginia Homes

Historic homes of the Tidewater section of Virginia, never before opened for a public pilgrimage, were among those visited on the tour of historic homes and gardens of Virginia, which was made under the auspices of the Richmond Chapter of the Wakefield National Memorial Association and the Colonial Dames of America in the State of Virginia. The principal purpose of the tour was to obtain further funds for the restoration of Wakefield, Virginia, the birthplace of George Washington.

The tour included Epping Forest, in Lancaster County near Warsaw, the birthplace of Mary Ball, the mother of George Washington, and still the home of lineal descendants; Berkeley, adjoining the Westover estate, the ancestral home of the Harrison family in Virginia; Amptill, the ancestral home of the Carys, which next year will mark its 200th anniversary. Its builder also superintended the building of the Governor's Palace and the State House in Williamsburg, as well as the rebuilding of William and Mary College after it was destroyed by fire; Chelsea, a colonial home on the Mattaponi River, near West Point, built in 1709. Here the first meeting of Governor Spotswood's adventurous spirits, "The Knights of the Golden Horseshoe," was held; Kinloch, twenty-nine miles east of Fredericksburg, one of the greatest Virginia estates, with a six-mile waterfront on the Rappahannock River; Rippon Lodge, near Alexandria, erected in the early part of the 18th century, at one time the home of members of the Washington family, and Wellington, five miles south of Alexandria, once owned by Washington. It was built before 1760.

Through the efforts of the Wakefield National Memorial Association, the old estate on which George Washington was born was saved from commercialization and desecration. The Association not only obtained 100 acres of the estate for all-time preservation, but also succeeded in obtaining a large sum of money for

restoration purposes, and in addition interested John D. Rockefeller in the patriotic task, so that he purchased another 254 acres of the original estate. All these lands are to be included in the George Washington Birthplace National Monument, established by Congress a year ago when this patriotic private endeavor was brought to its attention. In further recognition of the work done by the Association, Congress appropriated \$80,000 for expenditure in rehabilitating the monument, the work being done by the Association in cooperation with the National Park Service, under whose jurisdiction the area now falls, and the National Fine Arts Commission.

Pinnacles National Monument Enlarged

The area of the Pinnacles National Monument, California, has been enlarged to include 1,926 acres of additional lands. Proclamation effecting this enlargement was signed by President Hoover on April 13. The total area of the monument is now 4,906 acres, according to the Department of the Interior.

The newly added area was donated to the Government by San Benito County, California, and is of value from an administrative standpoint and also scientifically and educationally, says the department. The principal natural exhibits of the monument are a series of spire-like rock forms of volcanic origin which rise from 600 to 1,000 feet above the floors of its several canyons, forming a landmark visible many miles in every direction.

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THOSE AMONG US YOU SHOULD KNOW

The daily story of the forests is closely linked with names—personalities who are pointing the way in the various phases of the outdoors. Forestry, wild life and related fields all have their great and near great, and it is to better acquaint the public with these interesting people—men and women whose names are familiar—that this feature is conducted every month.

AUSTIN CARY, who carries the title of logging engineer for the United States Forest Service, is more than a lumberman forester. In his quiet, determined way he is a circuit rider for forestry. His background of experience, gleaned in many forests, is tempered by the more personal knowledge that comes with ownership, for Austin Cary stands among the few foresters who show their faith in forestry by investing their own savings in forests. It is no wonder then that the timberland owners from the spruce forests of the North to the long-leaf pine forests of the South, know Austin Cary and welcome his practical counsel. They recognize him as one who is at once optimistic, critical, constructive, and one who speaks in terms which they can understand. It has made him a potent factor in forestry development throughout the timber regions of the entire eastern half of the country.

Austin Cary is a product of the State of Maine, where the early lumbermen thought they had an inexhaustible supply of timber, and where between lumbering and paper making a very considerable business is done to this day. He was born at East Machias, in 1865, grew up close to the rockbound seacoast and the neighboring forest, and went to Bowdoin College. There he received the degrees of B.A., A.M., and more recently Sc.D. Not without honor among his colleagues, the Society of American Foresters elevated him to the highest rank within the profession—that of Fellow.

Practical woodsman and forester, teacher of forestry, investigator, voluminous writer and constant taker of notes, Mr. Cary undertook his forestry work in 1892, and has been a figure of increasing prominence in American forestry ever since. The economic management of forest properties has always fascinated him, and he has never wavered in his devotion to its practical and scientific aspects.

The accumulation of his experiences with the Forest Commission of Maine, the early Division of Forestry of the Federal Government, and as forester for the Berlin Mills Company,

which later became the Brown Company, of New Hampshire and Maine, coupled with his sound judgment, caused him to be sought after as a teacher of forestry. During the spring terms of 1904 and 1905 he taught at the Yale Forest School, and from 1905 to 1909 he was

assistant professor of forestry at Harvard University. Meanwhile he kept constantly in touch with the lumber industry by engaging as timber cruiser and timberland surveyor. This unusual combination of academic theory and practical contact with the industry resulted in the publication of Cary's *Manual for Northern Woodsman*. Within the three hundred pages of this handbook may be found the essence of practical woodsmanship. It is one of those rare books which prove indispensable alike to field man and student.

In 1909 he went with the State Department of Conservation in New York and a year later with the United States Forest Service. Since then he has been intimately associated with the investigational and promotional aspects of the Forest Service. During all this time he has consistently maintained his identity as a field man. Unanchored by an office he has kept in step with the lumbering industry. He presents facts without trimmings, and speaks without any attempt at oratory, yet he has probably done as much as any other one American forester to get forest principles accepted by the forest industry.

His work has taken him into practically all of the forest regions of the country. More recently he has spent much of his time in the southern pine woods. There he has seen the big opportunities in connection with the naval stores industry. His interest led him to study all the details of this dual-purpose forestry and in 1924 he accompanied the American Naval Stores Commission on its trip to France and Spain. At present he spends more than half of each year among the southern pines, but gets back for a few weeks every summer to renew his acquaintance with the white pines and spruce of Maine, and breathe again the cool breezes of the North.



Austin Cary

Practical Woodsman and Forester.

Lumbermen to Continue National Trade Extension

Decision to continue the national trade extension campaign for lumber and wood products was voted at the annual meeting of the National Lumber Manufacturers Association at Chicago, April 22, 23 and 24. The campaign will call for the expenditure of \$1,500,000 a year, it was announced.

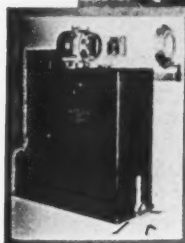
One of the principal resolutions adopted by the Association commends the appointment of the National Timber Conservation Board by President Hoover. The meeting was addressed by Alexander Legge, former Farm Board Chairman and now head of the International Harvester Company.

Ohio Forest-Park Inquiry

A special commission of inquiry to report on park and forestry conditions in Ohio was recently created. The commission is made up of State Forester Edmund Secrest, the Commissioner of Conservation, the professor of Civil Engineering at the Ohio State University, the Director of Public Works and a representative of the Metropolitan Park Systems in Ohio.

Hawaii Establishes Territorial Monuments

Charles S. Judd, Territorial Forester of Hawaii, has been made chairman of a recently created committee to establish and maintain territorial monuments and reserves within the Hawaiian Islands. This is in accordance with a law passed by the Legislature of Hawaii, and signed by Governor Lawrence M. Judd on April 9, which becomes effective on July 1, 1931.



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21,000 Acres of Trees Planted in National Forests

More than 21,000 acres were planted to trees in the National Forests in 1930, according to a compilation of field reports just completed at the Forest Service.

National Forest acreage planted has been increased gradually from a low point of 5,500 acres in 1921, as the result of small increases in funds made available by Congress, and of improvements in planting technic. Forest officers believe that 25,000 acres is not too much to expect for 1931.

Larger scale operations and improved methods have made possible reduction in the unit cost of planting. With increases in funds amounting to approximately 100 per cent, the Forest Service has been able to increase the annual planting acreage by nearly 400 per cent.

Planting operations for 1931 have already begun, with local crews employed by the Forest Service in the various regions. Present timber cutting methods on the National Forests insure natural reforestation, so that planting is necessary only on denuded lands that cannot be brought back into production by natural means. Despite the increased planting activities of the service, however, large areas of cut-over and burned-over land in the National Forests remain unplanted. Most of these areas were denuded before the lands came under Forest Service administration. Although the planting appropriation has doubled in a decade, planting has not yet been put in balance with other forest activities, says the Forest Service.

The increase in planting has been greatest east of the Great Plains and near the centers of future wood consumption. Last year 10,800 acres were planted in National Forests of the Lake States region and another 5,000 acres of former plantations were gone over to fill in stands spotted by the drought. In the eastern region 1,208 acres were planted, chiefly in the Allegheny National Forest in Pennsylvania and the Monongahela in West Virginia. About 366 acres were planted on the Ocala National Forest in Florida. Other plantings were made on the Shenandoah, Unaka, Natural Bridge, Chocatawatchee, Ozark, and White Mountain National Forests. The eastern plantings were mostly mixed forests, containing conifers and hardwoods native to the sections reforested.

In addition to Forest Service plantings of 1,459 acres in the Pacific Northwest, plantings of several hundred acres of National Forest land were made possible through cooperation extended by the Order of De Molay, the Boy Scouts and the Indian Service. It was estimated that 230,000 acres of National Forest lands in Washington and Oregon need reforesting. Douglas fir, western yellow pine and cedars were the principal varieties set out in that region.

In California National Forest planting in the past has been largely experimental. With the development of a nursery at Susanville, which is now beginning to furnish planting stock, it will be possible to somewhat expand the planting program. Seventy-five acres in the National Forests of California were planted in 1930 to yellow pine, Jeffrey pine, and sugar pine, and the plans call for extending planting to about 900 acres by 1933.

In Montana and Idaho, western white pine, western yellow pine and Englemann spruce predominated in the plantations which aggregated 4,960 acres. In the Rocky Mountain region, where 2,878 acres were set to trees some Douglas fir was planted with the yellow pine. Various species of pines were set out on the Nebraska National Forest with western yellow pine predominating. The total acreage planted on this forest in 1930 was 1,175 acres. A planting of black walnut and pecans was made on the Wichita National Forest in Oklahoma. The heaviest plantings in the Lake States were of Norway pine, with some white pine and Canada spruce.



Ask the Forester?

Each Month Forestry Questions Submitted to the Association Will Be Answered in This Column. If an Immediate Reply is Desired a Self-Addressed, Stamped Envelope Should Accompany Letter.

QUESTION: Please inform me of the number and acreage of town or local forests in the United States. Can you give me similar information with respect to the town forests in European countries?—*T. H., Connecticut.*

ANSWER: In 1929 the Forest Service reported a total of 726,577 acres of municipal and county forests and parks in twenty-nine states. New York State led with 175,000 acres, Oregon had 166,406 acres, Massachusetts 56,000 acres, North Carolina 37,257 acres, New Jersey 35,230 acres and Idaho 32,030 acres. These figures go beyond those of true town forests. According to Mr. Harris A. Reynolds, Secretary of the Massachusetts Forestry Association, that association was the first to encourage town forests in this country. Following the passage of a state law recognizing such ownership, Fitchburg, Massachusetts, established the first town forest in 1914. At present Massachusetts claims ninety-two town forests with about 26,000 acres, or an average of 275 acres per forest. In addition about 50,000 acres are controlled as municipal watersheds, but are not under the Massachusetts town forest act.

In Europe, where the towns have owned forests for many years, town forests occupy twenty per cent of the forest area of Germany, twenty-two per cent in France, over sixty per cent in Switzerland and fifty per cent in Bulgaria.

QUESTION: To what extent do British laws protect against cutting trees along highways?—*R. H. T., New York.*

ANSWER: The question was referred to the Roads Beautifying Society of England, and the following information is selected from a letter written by the Chief Engineer of the British Ministry of Transport.

"The Public Health Act of 1875, Sec. 149, prescribes that 'any person who, without the consent of the urban authority, wilfully displaces or takes up or who injures . . . the trees in any . . . street, shall be liable to a penalty not exceeding 5 pounds; he shall also be liable in the case of injury to pay the local authority such amount of compensation as the court may award. . . ."

"There is, of course, another side in which the highway authorities are interested, namely, the preventing of dangerous obstructions to the sight line by overhanging trees or shrubs. The Highway Act, 1835, gives power to highway surveyors to ensure that hedges and trees are properly cut, pruned, plashed or lopped so that the sun and wind are not excluded from the highway and so that no obstruction is caused to the traffic."

QUESTION: I am having some trouble with porcupines at a camp in the Adirondacks. Can you offer suggestions for their control?—*J. O. B., New York.*

ANSWER: Leaflet No. 60, entitled "Porcupine Control in the Western States," published by the United States Department of Agriculture, suggests hunting and shooting them in the winter after snow has covered the ground and caused the animals to concentrate where food and shelter are available. Where this is not practicable poison may be resorted to. The leaflet suggests thoroughly mixing one ounce of powdered strychnine with one pound of finely crystallized table salt. One-half ounce of magnesium carbonate may be added to cause the poison to cake and prevent it from being blown away. Great care must be taken to set the poison where livestock or other animals will not get it. This can be accomplished by setting it in the porcupine dens or in small wooden containers nailed fairly high in trees frequently used by the animals.

QUESTION: I would like some statistics and general information on woods fires in Florida.—*M. C., Florida.*

ANSWER: According to figures made available by the United States Forest Service in June, 1930, Florida has a total area of 22,918,640 acres which should be protected from forest fires. Of this amount, 1,684,100 acres were under actual protection. This is less than seven per cent of the total area needing protection. State Forester Harry Lee Baker at Tallahassee reported that 16,025,900 acres of unprotected land burned over in 1929 doing an estimated damage of nearly \$33,000,000. In contrast to this a little over seventy thousand acres of protected land burned over.

From July 1, 1929 to June 30, 1930, Florida expended a total of \$132,711.80 to protect the forests of the state from fire. Of this amount, \$42,200 was appropriated by the Federal Government under the authority of the Clarke-McNary Law and the remainder was expended through private landowning agencies.

The State Forester has a force of men in various parts of the state who are cooperating with the Southern Forestry Educational Project of The American Forestry Association, doing everything in their power to protect the forests from fire.

There are two National Forests in the northern part of Florida whose total area is now over 400,000 acres. These are carefully protected from fire and every effort is being made to develop satisfactory forestry growth upon them.

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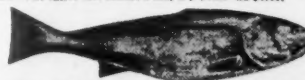
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PERENNIAL GARDENS, by H. Stuart Orloff, L.A. Published by the Macmillan Company, 60 Fifth Avenue, New York City; 88 pages; illustrated. Price \$1.25.

The author, a trained landscape architect, gives through these pages explicit information and helpful suggestions for the planning and care of perennial gardens. He tells how to select the garden site, how to prepare the soil, how to arrange interesting flower beds, and what to plant so that there will be colorful blooms from early spring until the last days of autumn. He gives instructions for the cultivation and maintenance of perennials, and discusses preventive and control measures for the relief of plant diseases and insects.

The small estate is given especial treatment to the end that the most artistic effects in color schemes may be produced in any garden design. The various garden diagrams emphasizing the system of paths, shrubbery and background foliage in relationship to the house, and the arrangement of the various plants, give composite ideas for the beautification of the landscape. These plans represent actual places which the author has planted, and they can readily be adapted to any available space in a most satisfactory manner.—D. H.

Log house construction is described and pictured in the recently published Farmers' Bulletin No. 1660, entitled "The Use of Logs and Poles in Farm Construction," by T. A. Miller of the Bureau of Agricultural Engineering. Although designed especially for farmers the bulletin promises to fill a real need among owners of summer camp sites who may wish comfortable and substantial rustic buildings.

CATTLE, by William MacLeod Raine and Will C. Barnes. Published by Doubleday, Doran and Company, Inc.; 340 pages; illustrated. Price \$2.

Written without a plot, "Cattle" carries the germ of a thousand plots. It is the record of a great social and economic force that spread from south to north weaving across the western migratory current of home-seekers and questers after gold. The Texas cowboys drove their "dogies" along the Chisum Trail to Wyoming and Montana, meeting adventure as it came, and leaving the impress of their flashing personalities wherever they went.

"Cattle" is not a story, but a faithful record, replete with vivid thumb-nail sketches of individuals, incidents and towns that helped make history when cattle were the means of opening up the West.

Fortunately the book is written by two men whose sympathetic contact with this picturesque phase of western life goes back for many years. Mr. Raine is best known as a writer of western fiction, and Will Barnes as one who has been intimately associated with cattle, sheep, horses and forests for more than fifty years. During nearly half that time he was with the Forest Service and played a major part in establishing the grazing policy on National Forests. Referring to the National Forests the authors give high credit to the cow-puncher ranger whose

place is now giving way to graduates of forestry schools. Probably with Mr. Barnes' experience in the Forest Service in mind, the authors wrote that the Forest Service has helped to change the flow of the cattle tide "from a turbulent stream to a placid flood, and has been a factor in transforming the cattle trade from an uncertain adventure to a business dominated by the laws of supply and demand."—G. H. C.

"Black Locust, a Crop for Gullied Lands," has just been released by State Forester Fred B. Merrill, of Mississippi. The pamphlet was prepared by H. C. Mitchell, assistant state forester, and brings out the use of black locust in conquering the badly eroded areas of north central Mississippi and western Tennessee.

FOREST MEASUREMENT, by Harold C. Belyea. Published by John Wiley & Sons, Inc.; illustrated; 319 pages. Price \$3.50.

Professor Belyea describes the measurement of forest products, of individual trees and of forest areas from the practical as well as the theoretical standpoint. Included within this book are the numerous "rules of thumb," which should be known to every timber cruiser, and the more technical refinements of mathematical formulae, which only the forest engineer is capable of using. "Forest Management" is essentially a textbook, and as such promises to fill an important field in the teaching of forestry.—G. H. C.

"Key to Georgia Trees," Georgia Forest Service Bulletin No. 13, by Charles Newton Elliott, Assistant Director of Education of the Georgia Forest Service.—Gives the key to all forest trees known to exist in Georgia. The most generally used common name as well as the scientific name is used for each species, and the marks of identification given.

Log cabin construction is discussed in considerable detail in a Farmers' Bulletin No. 1660 recently published by the Department of Agriculture. It is liberally illustrated with photographs and drawings. The bulletin is by T. A. H. Miller of the Bureau of Agricultural Engineering, and is known as "The Use of Logs and Poles in Farm Construction."

THE FOREST SERVICE, ITS HISTORY, ACTIVITIES AND ORGANIZATION, by Darrell Hevenor Smith. Published by the Brookings Institution, Washington, D. C.; 268 pages. Price \$3.

It is a long story from the "live-oak" legislation of 1799 to the present organization of the Forest Service of the United States Department of Agriculture, administering more than 160,000,000 acres of land. Its presentation includes long tables of statistics and frequent reference to laws, but Mr. Smith has touched the high spots and carries the story forward to the present time with surprising rapidity.

As the need became apparent for a government bureau to study the forest situation and

administer laws pertaining to forest conservation. The American Forestry Association came definitely into the picture and remains there during the history. Mr. Smith refers to The American Forestry Congress at Cincinnati in April, 1882, which again met in Washington in May, 1884. Among the subjects discussed at that time was the influence of forest cover upon stream flow and climate.

In 1884 the Senate Committee on Agriculture recognized the growing interest in and importance of forestry and changed its name to the Committee on Agriculture and Forestry.

In 1886, when Dr. Bernhard E. Fernow succeeded Nathaniel Eggleston as Chief, the Division of Forestry was given permanent statutory rank. All the appropriations from 1876 to 1886 had totaled only \$60,000—with only one trained forester. This is in marked contrast to appropriations for the fiscal year 1930, totaling more than \$13,000,000.

The work proceeded in a struggling way until the passage of the act of March 3, 1891, wherein section 24 provided that the President might set apart and reserve any part of the public lands as public reservations. Upon this foundation the first true National Forests in America were built. Within the next two years more than 17,500,000 acres were withdrawn.

The book presents in an authoritative manner a wealth of information of value to all American students of forestry and conservation.—G. H. C.

"A Study of the Influence of Herbaceous Plant Cover on Surface Run-off and Soil Erosion in Relation to Grazing on the Wasatch Plateau in Utah"—by C. L. Forsling, of the United States Forest Service, issued as Technical Bulletin No. 220, by the Department of Agriculture, Washington, D. C. This is the most recent authoritative publication telling how restoration and proper grazing of western range lands will lessen the intensity of summer floods and reduce soil erosion.

LUMBER AND ITS USES, by R. S. Kellogg. Published by the Scientific Book Corporation, New York City; 378 pages; illustrated. Price, \$4.00.

Announced as a fourth revised and enlarged edition, this work—long recognized as a standard authority—is a brand new book, just off the press. In its new dress, modernized and improved, it is the most intelligent, comprehensive presentation of the net results of twenty-five years of lumber research available. There are twenty chapters dealing with 150 vital problems. There are one hundred charts, tables and illustrations, as well as an instantaneous fact-finding index, thoroughly revised and brought down to date. All practical information bearing definitely and directly upon the daily problems confronting the man who handles, manufactures or utilizes lumber will be found here and it is felt that the author—long and widely known as an authority in the professional lumber and forest field,—has done the wood-using industries a great service in the preparation of this work.—L. M. C.

Published by the Wisconsin Conservation Commission, at Madison, Dr. Alfred O. Gross, of Bowdoin College, as a special research investigator for the Research Bureau of the Commission, has written the "Progress Report of the Wisconsin Prairie Chicken Investigation."

While the report is full of interesting detail, it should be considered preliminary, for it is one of the results of an investigation now under way which has been carried on for two years. The facts found so far bring out the necessity for the continuation of this work which the Wisconsin Commission has inaugurated to discover the true conditions of the game populations of the State.



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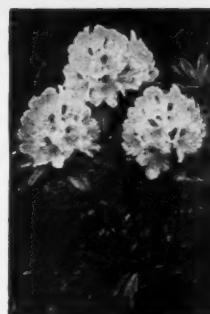
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was that Sir Walter not alone introduced tobacco in England, but mahogany. Not so important. But few things really are.

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STUMPAGE RATES.—The lowest rates considered, \$3.75 per M for western yellow pine, \$4.00 per M for sugar pine and \$0.50 per M for white fir, red fir, incense cedar and lodgepole pine and for material, to be cut and removed at the option of the purchaser, unmerchantable because of size under the terms of the agreement; these rates to apply also to any or all material unmerchantable because of defects if taken and if charged for. Rates to be adjusted every 3 years.

DEPOSIT.—\$6,000.00 must be deposited with each bid, to be applied on the purchase price, refunded, or retained in part as liquidated damages, according to conditions of sale.

FINAL DATE FOR BIDS.—Sealed bids will be received by the Regional Forester, San Francisco, up to and including June 20, 1931.

The right to reject any and all bids is reserved. Before bids are submitted, full information concerning the character of the timber, conditions of sale, deposits and submission of bids should be obtained from the Regional Forester, San Francisco, California, or the Forest Supervisor, Quincy, California.

Aid Control of Predatory Animals

The ten-year program of predatory animal and rodent control, authorized by the last Congress will make more effective the control work as already organized, rather than stimulate new lines, according to officials of the Bureau of Biological Survey. Activity in predator and rodent control, it is pointed out, has been encouraged by state and other cooperating agencies which have provided funds far in excess of Federal appropriations.

Cooperative control operations have been dependent upon annual appropriations. Congress now puts the work on a long-term basis, and authorizes appropriations of \$1,000,000 annually. The increased appropriations, however, cannot become available before July 1, 1932, because the last Congress adjourned before the increased funds could be made available.

On Federal lands the ten-year program contemplates continued cooperation by the Biological Survey with the Forest Service, the Indian Service and with other agencies. The National Forests include more than 16,000,000 acres of lands infested with rodents, principally prairie dogs and ground squirrels. Prairie dogs destroy from 20 to 80 per cent of the succulent forage grasses near their towns. The ten-year program plans the eradication of prairie dogs where they are seriously competing with livestock.

Bids Asked for Aerial Freight Transportation to Montana Forest

Bids for the transportation by air of 60,000 pounds of freight to Big Prairie in Flathead National Forest, Montana, have been asked by the Forest Service. Big Prairie is located in the midst of the forest, it was explained, and it is expected that fire-fighting supplies can be transported more cheaply and more efficiently by air than by pack train. There are no roads into this region. It is stated that if this method is found economical it will be adopted regularly for transportation of goods.

Kansas Encourages Reservoir Construction to Conserve Water

Kansas landowners who construct dams across their dry watercourses and thus form reservoirs for the storage of surface water may have the assessed valuation of the land upon which the reservoir is located reduced at the rate of \$75 per acre foot of storage capacity. This is the result of a law enacted by the State Legislature in 1929 and is causing increased construction of reservoirs in all portions of the State.

Timber Experts Wanted

The United States Civil Service Commission has announced open competitive examinations for associate timber experts and assistant timber experts to fill vacancies in the United States Forest Service. Applications should be filed with the Commission not later than June 3, 1931. The entrance salary for the associate positions is from \$3,200 to \$3,800 a year; for the assistant positions from \$2,600 to \$3,200 a year.

Applicants must have had certain specified experience, for part of which suitable education may be substituted, of such character as to demonstrate ability to conduct surveys involving measurements, classification and description of forest properties, as well as a working knowledge of forest exploitation.

White Pine for National Tree Urged

In a letter to the editor of the New York Times, Robert Sterling Yard, secretary of the National Parks Association, recently urged the white pine of the eastern and middle Atlantic states to be the national tree. His letter follows:

"Referring to Secretary Wilbur's recent news release quoting a British Army officer's suggestion that the Giant Sequoia of the Sierra should be declared our national tree, I hope that I shall not be thought lacking in devotion to 'the greatest and noblest of living things' by suggesting that, if there is to be a national tree, it ought to be the white pine of our eastern and middle states and south eastern mountains.

"Vigorous and beautiful though the white pine is, it cannot compete, of course, in these respects with King Sequoia. It is what it was to the nation in infancy and youth that entitles it to the highest honors that a nation can pay to a tree.

"Of the 1,065,000 square miles of incomparable forest that, east of the prairies, faced the young nation clinging to eastern sea coasts, forty per cent, or 440,000 square miles, were coniferous and of these a large proportion was white pine. The soft but powerful quality of its wood, easy to saw, split and tool yet unequalled for every home-making purpose from weather-boarding and flooring to platters and spoons, made national growth at American speed and comfort possible, while its easy lumbering, hewing and sawing, and immediate popularity abroad as well as at home, gave impetus to trade, providing for many years the market vigor which has characterized our progress from colonial times.

"The high tide of the white pine era is not so far back that hundreds of thousands now living do not recall it in full detail. Millions now living sunk their jack knives daily in its close white flesh for the innumerable things that boys once made for themselves or did without. Any other wood was scarce around the 'place,' which was even picket-fenced, except for the posts, in pine. Even into powerful speeding maturity, this nation was built up of white pine and prospered because of it.

"Of course we ran through it to the finish, as Americans always do. Its price rose with scarcity. Eventually it passed out of the general market, other soft woods from the south and west supplying parts of its uses; no other wood can ever fill all its uses.

"But it did not, like the passenger pigeon and other early Americans who suffered from popularity, pass into extinction. Many small groves of fine trees hid safely in the forest fastness of New England, the Adirondacks, Pennsylvania and the uplands of the Southern Appalachians, carrying on into the future nature's unbroken story.

"The White Pine can no more be destroyed than the nation that it built up. Highest priced of all our lumber, it may never again figure in the market, but there are uses for which it will always be essential. One of these, not a commercial but far higher a use, is to be beautiful. It is seldom a stately tree, and rarely composed and regular of aspect, but as independent of body and full of action as the nation it symbolizes so well. Often it flings its arms aloft as if beckoning on its fellows to a greater future. It is individual, suggesting a wide variety of activity and achievement.

"Who dares to say that the day of the white pine is past? Or even that it has come? Like the giant sequoia, the white pine is a national park tree. Both attain their greatest stands in national parks, the giant sequoia in Sequoia National Park and the white pine in the Great Smoky.

"It is honor enough, even for Giant Sequoia, to be King of Trees. Let us pay some very small part of our vast debt to White Pine by pronouncing it the National Tree of America."



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Yellowstone Park Boundary Commission Reports

Recommends Addition of Bridges Lake Region and Retention
of the Bechler River Meadows

AN ADDITION of 250,480 acres to the Yellowstone National Park in Wyoming and its permanent preservation as a wilderness area by special act of Congress is one of the outstanding recommendations of the Yellowstone National Park Boundary Commission whose report on park boundary changes was released and made available in printed form last month. The area recommended for addition lies at the southeast corner of the park and embraces historic Bridger Lake and its setting of mountain meadows rimmed by bold escarpments of impressive beauty.

In support of its recommendations the commission says: "This area should be added to the Yellowstone National Park in recognition of the outstanding national park quality and exceptional scenic beauty of the Bridger Lake Meadows and immediately surrounding bold escarpments of Hawk's Nest, and Trident and Thorofare, and Two Ocean Plateaus; and of the exhibit of moose in natural and undisturbed environment. This addition will include the very finest scenic area of the whole Upper Yellowstone Valley, meeting in every respect the most exacting interpretation of national park standards; and will, moreover, provide additional sanctuary for the moose, in fact the best of the range, and in an area where this animal concentrates. It embraces, too, the point of diversion of the routes of migration of the elk."

In adding the area to the park, the commission declares, Congress should clearly define the purpose of retaining the region in its original wilderness character by prohibiting the construction of roads, hotels, or other permanent development.

In respect to the larger area of 165,000 acres lying immediately to the east and embracing the headwaters of Thorofare Creek and the Upper Yellowstone, the commission recommends that it continue under government administration as part of the Teton National Forest. The commission, however, holds that the area is of national park quality, but it appreciates its economic values of recreation and opportunities for free enjoyment of the wilderness, as now made available under the administration of the Forest Service. It recommends that the Forest Service formally establish this portion of the Teton National Forest as a wilderness area in which no roads or permanent human habitations shall be established, and that the present prohibition against grazing shall be continued.

In dealing with the Upper Yellowstone and Thorofare country as a proposed addition to the Yellowstone National Park, the Boundary Commission's recommendations differ from those made in 1925 by the Coordinating Commission on National Parks and National Forests. The latter commission recommended that the entire Upper Yellowstone and Thorofare region be added to the park. With this view one member of the Boundary Commission concurs, Charles H. Ramsdell of Minneapolis, Minnesota, who submits a minority report holding that the entire Upper Yellowstone and Thorofare country is the logical addition to be made to the park.

The Yellowstone Park Boundary Commission was created in 1929 by a joint resolution of Congress which directed the President to appoint a commission to inspect proposed adjustment in the south, southeast, and southwest boundary of the park which had been subject to controversy for a number of years. As mem-

bers of the commission, President Hoover appointed Dr. E. E. Brownell of San Francisco, Chairman; Arthur E. Morgan, President of Antioch College; Dr. T. Gilbert Pearson, President of the National Association of Audubon Societies; Charles H. Ramsdell of the American Institute of Landscape Architects, and Mr. Arthur C. Ringland, former Secretary of the National Conference on Outdoor Recreation. This commission spent several weeks during the summer of 1929 studying boundary conditions on the ground and holding public hearings.

One of the areas studied and reported upon by the commission was Bechler meadows, which embraces the southwest corner of the park and which has been proposed for elimination. This proposal is based upon a claim that the area is needed for a storage reservoir in order to provide additional irrigation water essential to the prosperity and continued development of farmers along Fall River, Teton River, and the north fork of the Snake River in Idaho. The contention of the farmers has been that the Bechler River meadows within the Yellowstone National Park and immediately adjacent to the southwest boundaries provide the only economical and feasible reservoir site.

In passing upon this question, the commission satisfied itself through technical examinations by qualified engineers that there is an available reservoir site on the Teton River outside the National Park. This site, the commission holds, is more economical and serviceable to the local irrigation interests than the proposed Bechler River site. It, therefore, recommends against elimination of the Bechler River meadows from the park, stating that "in the absence of a demonstrated public necessity, the commission finds that it is unnecessary and undesirable to break into the integrity of the Yellowstone National Park. . . .

"It has been suggested," the commission continues, "that a road should be constructed to connect Ashton, Idaho, with Old Faithful, by way of the Bechler River Canyon, to afford an additional gateway and ready access into the Yellowstone National Park. This commission wishes to indorse this project, believing that such a road would open to the public an area of unique scenic charm, passing along the Bechler River meadows and through Bechler Canyon, affording intimate and engaging views of a series of beautiful falls and cascades. A location for such a road is feasible, and can follow the high contours of the foothills above the Bechler Basin."

The commission also recommends against the proposed elimination from the park of two small areas lying just inside the southern boundary which it has been claimed are illogical parts of the park, because of the fact that they are separated from it by the Snake River. The Coordinating Commission of 1925 recommended the elimination of these areas, but the present commission believes that they should be retained in the park for the time being at least.

Apart from specific boundary recommendations, the commission expresses the belief that general legislation is desirable to protect from abuse tracts designated by the Forest Service or by Congress as federal wilderness areas. It points out that such areas are becoming of increased importance in the development of recreational plans of the government to meet public demand. It calls attention to the fact

that the mining laws permit prospecting and developing of mineral wealth within the National Forests, but it holds that the "taking of any resources other than mineral deposits, or the occupancy of the land for any purpose other than prospecting or mining, should be forbidden, and legislation to this end is suggested."

The commission's report is attractively prepared and liberally illustrated with photographs and maps depicting the region reported upon and its scenic and wild life characteristics. In addition to the commission's findings, it includes the report of Mr. C. A. Bock on reservoir sites in the Bechler and Teton regions; a report by O. J. Murie of the United States Biological Survey on game conditions in the Upper Yellowstone-Thorofare region, and transcripts of public testimony taken by the commission at the hearings held in the West and in Washington.

Designs Completed for Roosevelt Monument on Continental Divide

Final plans for the Roosevelt Memorial Obelisk to be erected on the Theodore Roosevelt International Highway at the boundary between the Lewis and Clark and the Flathead National Forests, at Marias Pass, Montana, have been received by the United States Forest Service, and early construction is assured. The monument was authorized by act of Congress last year.

The general design for the monument has been approved by the Fine Arts Commission at Washington, D. C. The shaft will be sixty feet high, and the proportions will be similar to those of the Washington Monument in the National Capital. The base platform will be twenty-three feet square. The monument will be of granite with a reinforced concrete core. Total cost will be \$25,000.

One tablet will bear the inscription: "Erected to Theodore Roosevelt in commemoration of his leadership in the conservation of the forests of the United States. 'Forestry is the preservation of the forests by wise use.'—Theodore Roosevelt." The other will read: "Erected under authority of an act of Congress, approved by President Hoover, June 2, 1930."

Forest Products Office Moved

The Section of Forest Products, which for many years has been a part of the regional forester's office in Portland, has just been merged with the Pacific Northwest Forest Experiment Station. W. H. Gibbons, formerly in charge of this section, has been promoted to a position in the Branch of Research in Washington, D. C. His successor as chief of products has not yet been selected.

The Section of Forest Products is a research unit of the Forest Service whose field is the study of the physical properties of forest products, their manufacture and utilization. The purpose of its studies are primarily to promote fuller and better conversion and use of forest products, for the benefit both of the lumber industry and the consuming public.

Build Roads in Pennsylvania Forests

More than 2,000 miles of roads and nearly 3,000 miles of trails have been built in the state forests of Pennsylvania, according to the State Department of Forests and Waters. Of this, 128 miles of automobile roads and 154 miles of trails were constructed in 1930. In addition, fifty-four miles of automobile roads were improved and eighty-seven miles of wagon roads were conditioned for automobiles. These roads are for fire protection, administration and public use.

Florida's Forest Land Problem

With land delinquency increasing rapidly since 1926, Florida is facing the necessity of adjusting the present forest land tax burden to the forest land income, according to a recent bulletin by J. J. Goulden of the Florida Forest Service at Tallahassee. In nine Florida counties studied in 1929 there were 870,000 acres of delinquent land. Further study revealed the fact that the unimproved land is bearing a heavier proportion of the tax burden than is the improved land. The average annual tax on unimproved land in ten representative Florida counties in 1929 was twenty-six cents an acre, while similar land in three forest counties of South Georgia averaged nine cents per acre. The fact that Georgia is experiencing no serious problem of land tax delinquency further points to the probability that excessive taxes are one of the underlying causes of Florida's problem.

Forest depletion, brought about by woods fires and destructive woods practices, coupled by high taxes, indicates a vicious circle. Permanent relief, according to Assistant State Forester Goulden, must be approached through the application of forest management. This would include fire protection, desirable turpentine practices and conservative cutting.

Louisiana Puts Fire Prevention on Year-Round Basis

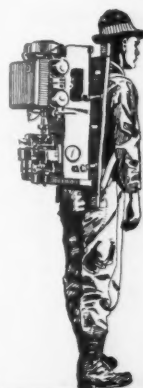
Forest-fire prevention work in Louisiana is now placed on a twelve months basis, according to a recent report by State Forester V. H. Sonderegger. Each fire warden receives his salary only so long as he keeps the fire losses on his area within a definite minimum. The new system has been in effect for less than a year but has already demonstrated its efficiency.

The Forestry Division has approximately 5,000,000 acres under a complete system of protection. This includes the property of 208 landowners who pay two cents per acre to the State of Louisiana, which with \$47,350 from the Federal Government, and an appropriation of \$80,000 from the state, gives a total budget for forestry purposes of about \$170,000.

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A Memory

By Isabel Likens Gates

Give me trees where roadways trend,
With towering, sheltering arms;
Where joyously the wild birds sing,
And noisily the spaces ring
With notes of their love and alarms.

Oh give me a tree where the roadway bends,
That my soul may find release
From rasping cares of yesterday
And trials of now that beset the way;
Surcharging with love and peace.

Give me a tree with its sheltering arms,
Wherever I chance to roam,
That seeing, I vision, early—late—
A tree that stood by the garden gate
Of childhood's home, sweet home.

Arrange Price for Great Smokies Tract

Agreement on the price of 93,000 acres of land of the Champion Fibre Company of Canton, North Carolina, in the Great Smoky National Park area in North Carolina and Tennessee, has been reached between representatives of the company and the park commissions of Tennessee and North Carolina, it has just been announced.

The purchase agreement followed three days of conference held upon the invitation of H. M. Albright, Director of the National Park Service of the Department of the Interior. The price was not made public.

The purchase price, it was said, involves approximately 92,814 acres of land in both states which is the heart of the Great Smoky National Park, and includes the interstate line for a distance of eighteen miles. It embraces the Sawtooth Mountains, and at no point is the elevation less than one mile above sea level.

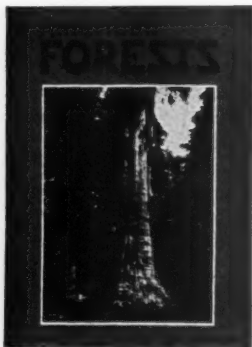
Outstanding features are Mount Le Conte, elevation 6,593; Mount Guyot, elevation 6,621; Clingman's Dome, elevation 6,642; Chimney Tops, Mount Mingus, the Rainbow Falls, Alum Cave, and Mount Collins and Kephart. It contains what is conceded to be the largest body of primitive hardwood timber and the heaviest stand of red spruce yet remaining in eastern America.

It is the belief of the North Carolina and Tennessee Park Commissions that the acquisition of this area assures the speedy completion of the park project, and that the park itself will be an actuality before long.

Secretary Wilbur congratulated the conferees at the conclusion of their deliberations on the results of their conference and the amicable manner in which all points at issue were discussed and adjusted. He stated that the acquisition of this area as the heart of the Smokies Park project would ensure its speedy completion, and consequent assumption of development by the National Government, and paid tribute to the efforts of North Carolina and Tennessee and the Laura Spelman Rockefeller Memorial whose financial cooperation has made the park a fact.

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Improving Planes for Patrol Work

Forest air-patrol planes can be made more efficient if specially designed for their work, according to Howard R. Flint, regional forest inspector of the Northern Rocky Mountain Region of the Forest Service. Ample power and carrying capacity, ease of handling, and the best instruments are recommended in his annual report on air-patrol work in the National Forests.

"From the standpoint of efficiency," Mr. Flint says, "planes much better adapted to forest patrol work than those now obtained are possible. Because the job is of such short duration and can be contracted for only one year at a time, it is perhaps impractical at present to procure the ideal equipment. Nevertheless, it seems desirable to record the specifications which long experience in this region dictates.

"From the standpoint of maximum visibility, the plane for forest patrol should be an open two-place parasol monoplane with the observer seated on an adjustable revolving stool in a rear cockpit, long and deep but not too wide. The plane should have the lowest possible stalling speed—about fifty miles per hour—and should be capable of at least 500 pounds pay load at 16,000-foot ceiling. It should have a cruising range of six hours and a transparent floor in the pilot's cockpit, and should be fitted to accommodate an aerial mapping camera. It should be fully equipped with a high-class altimeter, air-speed indicator, and compass in both cockpits and with the other accepted instruments on the pilot's instrument board. The plane should be powered by the latest type of 300-horsepower motor to give safety and easy performance."

Fire Loss Great in Mississippi

Eight million acres of land burned over and a loss of ten million dollars to the state from forest fires during 1930, is the statement of the Mississippi Forest Service.

Over twelve thousand fires caused this destruction, which covered a large portion of the forest area of the state, said Fred B. Merrill, State Forester, adding that Mississippi encountered one of its worst years for forest fires.

TUPELO TIME

(Continued from page 329)

water in the tupelo swamps during several months of each year renders it necessary to build many of the apiaries on platforms fourteen to sixteen feet in height and three hundred to seven hundred feet long. The honey house, containing two stories, is built immediately behind the platform at its center, and an inclined runway leads from each story to a small wharf or steamboat landing.

The hives are placed in double rows along the platform, with a passageway between, and the entire work of harvesting the honey and packing it for shipment is handled in the honey house at each apiary. All white tupelo honey is sold in the extracted form. When the hives are robbed the comb is brought into the upper story of the honey house and placed in a large vat, where a slicer removes the caps. It is then placed in frames in a revolving drum and the honey is extracted by centrifugal force, after which it runs through a pipe into a large tank of very tight construction on the lower floor of the honey house. Here the small amount of sediment and foreign matter contained in the honey settles and the finished product is drawn off into barrels constructed for this particular purpose. Because of its weight, honey is particularly subject to leakage, and it is difficult to handle in bulk. The barrels used are specially coopered of choice cypress, carefully washed, dried and paraffined inside. They are used

only once, each season's shipments going out in new barrels. River steamboats run twice a week and the barreled honey is delivered to them direct from the dock at the front of each apiary, or from regular landings.

Prices received by the producers are very low in comparison with the high price finally paid by the few consumers who obtain this choice product in its unadulterated form. The average for the past four years has been ten cents a pound.

For many years the honey was bid in by representatives of large commission houses who came to Wewahitchka for that purpose at the close of the honey harvesting season each spring. Eventually the monopoly which a few

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**The Dean of the
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of these held forced the price so low that local producers refused to sell and formed a cooperative association which has successfully handled the crop in recent seasons. All of the small producers belong to this association, but the largest individual producer, referred to above, bottles his own product and sells it direct to jobbers.

The advantages and possibilities of the industry are obvious. The apiaries require comparatively little attention, though practical operators are constantly studying the needs of the industry. The net returns on each producer's investment are good, even at present low market prices. It is, however, a seasonal business, involving very heavy work during the harvesting season and slack periods of employment at other times. Because of the isolated location of the apiaries, losses from forest fires and similar sources are considerable. Ill-timed

rains sometimes prove very costly to honey producers, and a single hard shower in the height of the white tupelo flow is estimated to cost the producers \$25,000 or more. Apiaries have been carefully spaced with regard to the probable number of bees operating on each tract, and as yet the white tupelo is plentiful and there has been no shortage of honey material.

The industry was established in this section more than fifty years ago, apparently in an accidental manner, and it has grown to proportions which are admittedly beyond the capacity of local producers to handle satisfactorily. It remains only for business to recognize the possibilities of the industry and to exploit them through practical channels, in order that the public at large may come to know by name a delicious native American product now enjoyed by only a few—fancy white tupelo honey.

STATE FORESTS AND THE UNEMPLOYED

(Continued from page 354)

lines into compartments of approximately 200 acres. On these fire lines, which followed old wood roads, all underbrush was cut for a width of fifteen feet and all dead trees removed for a distance of fifty feet on each side, thus providing a strip 115 feet wide in which there is no inflammable material except ground litter. Up to the present time 130 miles of such fire line has been constructed and all material removed from 1,500 acres of adjoining forest. As soon as the ground is thawed a tractor and harrow will be run over these fire lines as a further safeguard.

In addition to the work on fire lines a considerable amount of silvicultural improvement work has been in process. All forest plantations in danger of being suppressed by hardwood sprouts and brush have been and are being weeded. Altogether about 200 acres of state forest land have been planted and approximately half of it has to be liberated once or twice before the pines become dominant. Land severely burned last spring has been cut clean preparatory to planting this spring. The emergency appropriation for labor has made it possible to enlarge the 1931 planting program so that 600,000 trees will be set out and the

nurseries enlarged.

Thinning of existing stands of hardwoods is a much needed operation which has been neglected because of limited appropriations. All such areas adjacent to state and town roads are being thinned for demonstration purposes. Other plots on first quality soil will be thinned so far as money permits. All trees to be cut are marked by a forester. Altogether 600 acres have been thinned in this way in addition to the area from which only dead trees have been removed. About 3,000 cords of wood, 1,000 sawlogs, and 5,000 fence posts have been cut with somewhat less than half of the appropriation.

More work has been accomplished than could have been done with the regular appropriations of three or four years. Nearly six hundred men have been employed, and perhaps three thousand people helped. Furthermore these men have had healthy outdoor exercise and have become interested in the state forests. The public has come to realize that the state forests will not only be a benefit to the state in the future, but are already a substantial asset in furnishing remunerative labor to the men of a community.

SHELLS OF SPRUCE

(Continued from page 333)

trifle above and ahead of the hull, is the Alaska cedar stem spliced to the keel, and at the rear a similar piece known as the stern-post.

An interesting feature of the racing shell is the system of gliding seats which provide the oarsmen with a mechanical advantage in rowing. By sliding the seat aft when recovering from a stroke, each rower is able to bend his knees, and in stretching out with the stroke, he adds the power of his leg muscles to that of his arms and back in pulling the oar. Furthermore, the weight of the men shifting simultaneously and suddenly forward in the boat boosts the craft along in its progress through the water. The seats, as previously mentioned, are mounted on bronze wheels which roll on a track made of Sitka spruce, surfaced with Australian ironbark. This wood, sometimes called ironwood, is the hardest wood known, and, although it may be handled with wood-working tools, it is the nearest thing to metal in plant structure. These tracks are fitted at the ends with leather stops which terminate the twenty-two-inch glide of the seats.

Each year, late in June, at Poughkeepsie, New York, on the Hudson River, picked crews from the leading colleges and universities of the United States meet in competition. Although the varsity race is the major event of the regatta, there are also contests between freshman crews of the various schools and between

the junior varsities. In June, 1930, of the twenty-four racing shells competing at the regatta, nineteen were built in the Pocock shop. The winning ship, that of Cornell University, was a Pocock shell. With the widening interest being shown in crew racing, and the increasing popularity of rowing as a healthful exercise and sport, more colleges and even high schools are adding shells to their athletic equipment; and more boat clubs are providing their members with the smaller two- and four-oared shells. In March, 1931, Pocock sent to Canada six single-place shells, a record shipment in that size craft, and an indication of the increasing popularity of rowing. During his busiest season, Pocock made and shipped 300 oars and thirty-six boats. Among his customers he lists the leading universities and has made shells for boat clubs in Cuba, Canada, Argentina and Japan.

Each year when the crows at Poughkeepsie wait with baited breath for the signal which will launch the slim craft with flashing oars into the grueling four-mile race, a tall angular man watches with eagerness and a trace of pride the progress of the contest. No admiral was ever more deeply absorbed in the performance of his ships and men, for George Pocock, father of America's "wooden navy," is watching his children in action.

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RICHARD T. FISHER
Director

TO THE LAST BIRD

(Continued from page 351)

crouched with slightly moving head. A twenty-five-minute wait and the position of the bird is still unchanged. Five minutes later a "whoooo-doooooh," like the blast of some steam whistle barely within hearing distance, comes from the bird. A second and a third call follows. After each boom he springs into the air, flutters, whirls, and alights facing the opposite direction. A series of cackles follows, then all is quiet again. Now he starts feeding and moves toward the blind which to him is a part of the landscape. He crouches and eats. The click and whir of cameras within the blind cause him no alarm. Finally, for no reason at all he flies away to the scrub oak plains.

With the coming of summer in 1928 the three heath hens, according to tradition, disappeared among the scrub oaks of the Vineyard plains. In the fall two birds were reported as feeding in the vicinity of the Green farm. Since December of that year, however, only one male has been observed.

In the spring of 1930 the last heath hen made his regular springtime visits to the now silenced "booming" field. There was no attempt at courtship display—not a note was heard. His matinal hour of arrival was later than formerly. He flew directly to the blind where ample food was provided. Scrutinizing his surroundings cautiously to make sure that all was safe, he began eating, sometimes crouching, sometimes standing, or walking slowly about. This done there was little else to do except remain motionless and watch the proceedings of the nearby farm and the passing of vehicles on the highway. One morning his eye had an old-time brightness as he discovered three crows. Perhaps he suspected for the moment that his tribe was returning once more and that his waiting had not been in vain. Although scientifically this old bird has little faculty for memory, nevertheless, he must recall days of not long ago when this meadow was the setting of an animated frolic and he a participant. Later the crows began to partake of the food provided for him. They were his sole companions! He remained in the field until the morning was well advanced.

Despite requests that the last heath hen be killed and placed in a museum for science's sake, the bird has been allowed to live out its life in a normal way in the habitat of its vanished race. To be sure, no bird will pass from existence more carefully photographed and recorded for posterity. The heath hen will go into history as the first bird whose decline has been watched down to the very last survivor.

A Tree That Kills Bears

There is a limb of an old cypress tree in Dismal Swamp, Virginia, hollowed with age, and filled with thousands of bees and a store of honey, which is the magnet for bears and also the cause of their death, says John Francis Ariza in the *Baltimore Sun*. Anywhere within a hundred feet of a cypress-tree, the roots send up six to a dozen wedge-shaped shoots a few feet high, six or eight inches wide, and three to six inches thick, he states. It was on one of these shoots that a bear was found impaled. The story is that the bear, tempted by the honey, climbed to the branch in which there was a large supply of this sweet. There he was attacked by hundreds of bees, became confused and fell on one of the wedges. Mr. Ariza tells that around this same tree, in the undergrowth, there were the skeletons of six or more bears, all either impaled on cypress knees or near them.

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HUGH P. BAKER, Dean

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"WHO'S WHO" AMONG OUR AUTHORS

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Duane Kipp

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JOSEPHINE LAXTON (*Pisgah—A Forest Treasureland*) has been a member of the Appalachian Forest Experiment Station at Asheville, North Carolina, since its organization in 1921, and is intensely interested in the development of forestry in the South. Miss Laxton has written many articles dealing with forestry questions.



Josephine Laxton

OLIN S. PETTINGILL (*To the Last Bird*) is connected with the Laboratory of Ornithology at Cornell University. This story, "To the Last Bird," contains observations made during three spring trips to Martha's Vineyard with Dr. Alfred O. Gross of Bowdoin College for the purposes of studying and photographing the heath hen. The story gives a brief history of the bird from colonial times to the present and a discussion of the main causes of its decline.

W. D. DURLAND (*Mexico's Pine Forests*) has had varied forest experience in this, and foreign countries. He was formerly professor of forestry at the University of Porto Rico, an associate of the Porto Rico Forest Service, and Forester for the Dominican Republic. His work has also associated him with the United States Forest Service in the Pacific Northwest and the United States Indian Service.



William D. Durland

WAKELIN MCNEEL (*A Forest Page for Boys and Girls*) tells our readers how to recognize the things of the outdoors that they will encounter this summer.

FRED H. KISER (*Through the Lens*) again shows us how a professional picture may be accomplished in photography.

AUSTIN F. HAWES (*Forests and Unemployed*) is the State Forester of Connecticut, president of the Association of State Foresters, and chairman of the New England Section of the Society of American Foresters. He has been in State Forestry work since 1904, with the exception of three years which he spent in the Forest Service and Fuel Administration, from 1917-1920.



Austin F. Hawes

CLAUDE M. KREIDER (*Golden Fins of the Sequoias*) went to Arizona at the age of sixteen, where he worked at ranching and road building. Now a resident of California he claims as his "avocation, hobby—and almost religion—love for the high mountains, as typified in the Sierra Nevada."

H. R. ROSEN (*Underworld Characters*) is Professor of Plant Pathology at the University of Arkansas. He is a graduate of Pennsylvania State College, University of Wisconsin and Washington University where he received the degree of Ph. D.

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Inez Hale MacDuff

ROBERT S. WAITE (*D. A. R. Forest in Texas*) devotes his time to editorial and feature work, and says his greatest pleasure is in writing of the resources and beauties of Texas.

JAMES HAY, JR. (*In the Forest*) is a writer for magazines and newspapers. A political writer from the *Washington Times* from 1904 to 1910, he covered first the Capitol, then the White House in Washington, D. C. Mr. Hay traveled with Taft from his nomination until 1910.

NATT NOYES DODGE (*Shells of Spruce*) a graduate of the Colorado Agricultural College claims that "it is a matter of pride with the writer that he has remained with a branch of the profession of agriculture." Mr. Dodge claims writing and photography as his chief hobbies, and says that between the years spent "or squandered" in acquiring an education, "I camped, fished, hunted and hiked among the mountains near my home in Boulder, Colorado." Mr. Dodge is now a resident of Seattle, Washington.



Natt Noyes Dodge

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The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNITY FORESTS.

FOREST RECREATION as a growing need in the social development of the nation; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA and FAUNA.

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Member A. B. C.

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